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**Credits:** All pictures are Official U.S. Navy and U.S. Marine Corps photographs unless otherwise indicated. Most of the photos appearing in the articles which begin on page 4 and page 24 were provided by the author.

The front cover photo reveals Marines of First Battalion, Third Division aiding and comforting a corpsman who was wounded just south of the demilitarized zone in Vietnam in July 1968.

We are indebted to CDR W.M. Leadford, MSC, USN, The Administrative Officer to The Medical Officer, U.S. Marine Corps (Code AM), Headquarters, U.S. Marine Corps, Washington, D.C., for invaluable assistance in assembling the contents of this publication. It was a noble effort.

Technical support in graphic arts rendered by Mrs. S.B. Hannan, Code 4542, BUMED, is gratefully acknowledged.

This issue of U.S. NAVY MEDICINE is dedicated to the U.S. MARINE CORPS and the Medical Department personnel who support that elite Corps.

In preparing this journal, much that has been said or written about the Marines by devotees and critics alike, has been reviewed. All the commentary might be objectively summarized by saying that the Marines may not always be understood, but they surely are respected.

Marine Esprit de Corps is often mentioned and said to be undefinable. Whether it represents a highly developed sense of identity, the ultimate in conditioning, pride in tradition, raw courage, or a combination of all these things is difficult to say. There is some evidence to suggest that it is a form of enlightenment selectively reserved for those who witness Marines in their element — in hard combat.

Marines don't declare war. They only fight battles. They have a habit of winning them.



## from the Chief

Well before the birth of our Nation, colonial Marines distinguished themselves in both land and sea operations. In support of British fighting ships, Marines fought from rigging as sharpshooters, headed boarding parties, and were also employed as the spearhead of any landing force. The Continental Congress on 10 November 1775 enacted a resolution to raise two battalions, the first and second battalions of American Marines. It was further stipulated that the officers and men of these battalions should be good seamen, familiar with maritime affairs, and capable of serving to advantage by sea when required.

Despite the legislative establishment and organization of the U.S. Marine Corps on 11 July 1798, this highly valued military organization continued to serve as "Presidential Troops" assigned to the Army or Navy "according to the nature of the service in which. . . employed." The law created some ambiguity as to whether the Marines were a part of the Army or Navy when operating ashore.

The National Security Act of 1947, as amended (1952), sets forth basic guidelines for the present structure and function of the Marine Corps. We ought to be aware of the important provisions of that Act: it reaffirms that the Marine Corps is a Service within the Department of the Navy; it provides for Fleet Marine Forces, ground and aviation; it requires that Marine Corps combat forces consist of three divisions and three air wings, and sets a 400,000-man peacetime ceiling for the regular Corps; it assigns the Marine Corps the missions of seizure and defense of advanced naval bases, and land operations, incident to naval campaigns; it gives the Marine Corps primary responsibility for developing amphibious warfare doctrines, tactics, techniques, and equipment used by landing forces; it seats the Commandant of the Marine



Corps in co-equal status with members of the Joint Chiefs of Staff whenever matters of Marine Corps interest are considered; and it assigns the Marine Corps collateral missions of providing security forces for naval shore stations, providing ships' detachments, and performing such other duties as the President may require.

On the tenth day of November, the Marine Corps celebrated its 196th birthday. Certain members of our Medical Department had expressed the desire to extend something more than customary birthday greetings to our Marine colleagues. The idea rapidly took form and gained momentum, extending to involve medical personnel on a worldwide basis. The spontaneous gesture culminated in this issue of U.S. NAVY MEDICINE — a personalized tribute to the U.S. Marine Corps. It has been written by individual members of the Medical Department who express pride in having served with the Marines, and who treasure that association. So many have participated in fact, that only a portion of the papers submitted could be published in November. (Others will appear in subsequent months.) The overwhelming voluntary response of the Medical Department on this occasion reflects a high regard for the Marine Corps. It is a sincere, if not eloquent tribute to an esteemed military Service. 🇺🇸



From left to right: VADM Davis, COL Twomey, and MAJGEN Lahue.

The first Commandant of the U.S. Marine Corps, MAJ W.W. Burrows, established his headquarters in Philadelphia, the Nation's capital, on 12 July 1798. In July of 1800, when the capital had been relocated, LTCOL Burrows moved Marine Headquarters to Washington, D.C. By 1806, Marine Barracks Washington (8th and I Streets, S.E.) was completed. It is here that General L. F. Chapman, Jr., Commandant of the Marine Corps, resides today.

At the impressive Friday Evening Parade on 20 August 1971, VADM George M. Davis, MC, USN, Surgeon General, was honored by the U.S. Marine Corps and served as reviewing official at the Marine Barracks. Host for the evening was MAJGEN F.C. Lahue, USMC, Assistant Deputy Chief of Staff for Plans, Headquarters, U.S.M.C. COL D.M. Twomey is the Commanding Officer, Marine Barracks. The excellent pictures of the occasion were taken by SGT R. Hawkins, USMC.



# MARINE ESPRIT—

## A Highly Contagious Condition

By **CAPT James W. Lea, Jr., MC, USN;\*  
Executive Officer and Chief of Medicine,  
Naval Hospital, Charleston, S. C. 29408**

We of the Navy Medical and Hospital Corps, who served with the Fleet Marine Forces in the Republic of Vietnam speak not only for ourselves but for a long line of predecessors who have served with them in other years on other shores. As before, we found them to be our country's bravest and finest men, bound together and motivated by tradition, ethics and an esprit de corps that makes the "Green Machine" the finest combat force in the world.

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\*CAPT J.W. Lea, Jr., was Commanding Officer of First Medical Battalion, First Marine Division, F.M.F., and Assistant Division Surgeon of First Marine Division, F.M.F., from February 1969 to June 1970. His article provides considerable insight into the problems faced and the personal attributes of a medical leader who excelled in performance. The photographs, like the paper, are honest and real.

The opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Navy Department or of the naval service at large.

We saw Marine muscle do the work of huge machines and equipment and the imagination and common sense ingenuity of youth replace the skills of trained engineers.

We saw Marine wounded and dead retrieved from the battlefield by air or ground under seemingly impossible conditions.

We saw the ultimate in leadership-by-example brought clearly home when a newly-formed friendship with a Marine officer or non-com was terminated by his death in combat.

We saw suffering made bearable only by a mystic factor embodied in the words, "I am a Marine."

For the rest of our lives, we will feel the emotional strengths and bear the scars of this experience with Marines in combat. For this we are stronger, prouder, more compassionate men and patriots. It is fitting that in return, we pledge ourselves and direct our full energy toward providing them the finest combat medical care in the world.

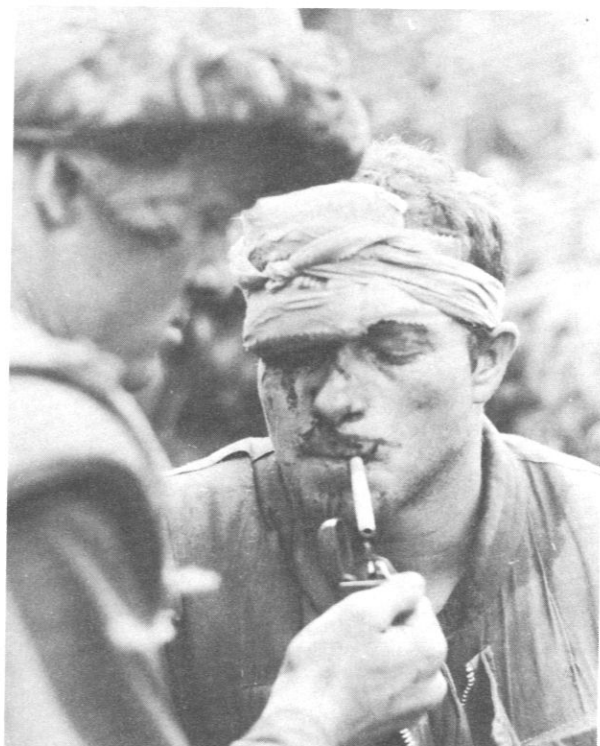


Corpsmen struggle in vain to save the lives of critically injured Gunnery Sergeant (background) and a medical officer (foreground) in Vietnam. (Official DoD photo, U.S. Marine Corps)

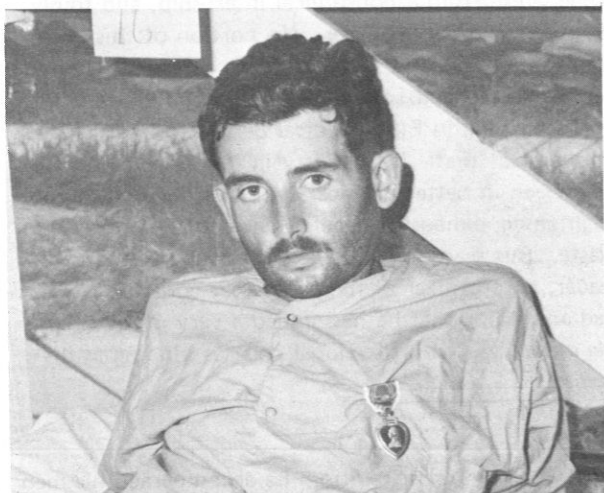
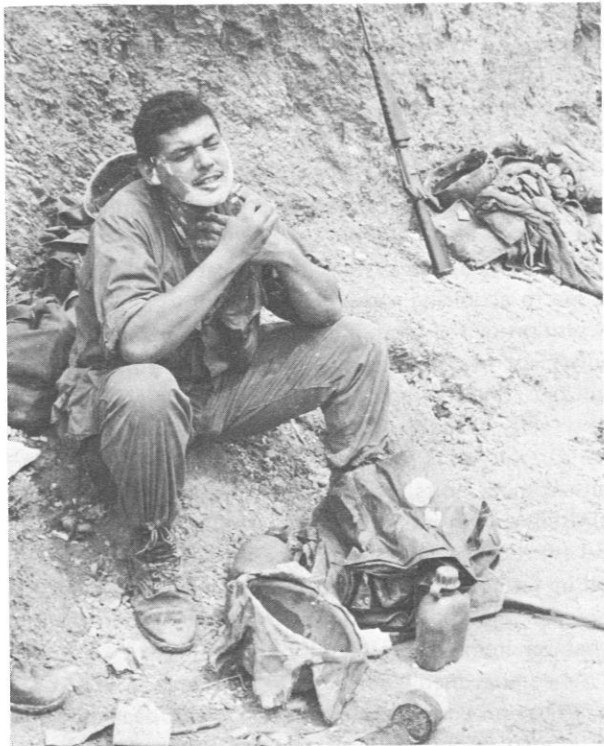


Marines carry out wounded buddies after M-33 grenade booby trap explosion, 10 miles northeast of An Hoa, RVN, in Jan, 1969. (Official DoD photo, U.S. Marine Corps)

This is who it's all about....







## The Medical Battalion

The Medical Battalion itself, traditionally, and initially utilized as four collecting and clearing companies was literally drawn together into a hospital by the Marine helicopter crews whose courage and initiative made the magnificent Medevac system possible. Even under the most adverse tactical and weather conditions, these men removed virtually all combat casualties directly from the field to the Medical Battalion, Hospital ships or NSA (Naval Support Activity, DaNang, RVN) Hospital. The minimal lapse of time required for evacuation, and the forward deployment of relatively fixed definitive care facilities led naturally to a dramatic change in scope and capability of the Medical Battalion.

"Charlie Med," a 60-bed collecting and clearing company provided the first support for the First Marine Division at DaNang in 1967. In three years, the medical complex at this site grew to a peak of 400 beds as the 100 beds of First Hospital Company and 60 additional beds of a collecting and clearing company from the 26th Marines came under our administrative control.

During this growth period, services of subspecialists in vascular, thoracic, ophthalmologic and neurologic surgery were obtained. Their acquisition naturally led to the need for a wider spectrum of surgical instruments and monitoring devices as well as expansion of paramedical services. The addition of anesthesiologists with backgrounds in inhalation therapy led to a progressive sophistication of the intensive care/recovery unit with needs such as Balkan frames, controlled volume respirators and laboratory equipment such as a gas analyzer, spectrophotometer and flame photometer.

Also during this time, the number of laboratory procedures provided by the Battalion grew from the archaic number of 12 to well over 100, available on a 24-hour basis. By 1970, the total number of laboratory tests performed per month had reached 15,000. In contrast to Army field medical units, First Med rarely used universal donor transfusions (e.g. two of 393 transfusions in March, 1970). On the occasions when the basic out-of-country blood procurement system was overwhelmed by mass casualty-generated needs, our blood bank personnel never failed in procurement, either by transfer of whole blood from sister medical facilities, or the drawing from donors within the Battalion or adjacent battalions such as First Reconnaissance, First Shore Party and the Seabees. Also by 1970, the pharmacy was filling up to 3,000 prescriptions per month.

This evolution naturally required a progressively increasing and constant flow of supplies and equipment

which the Force Logistics Command Supply System was never designed to handle. The specialized laboratory equipment mentioned above is obviously not a part of the Medical Battalion's old standard table of equipment. Caught in the framework of a combat-gear Marine Corps Supply System, we procured these items on an immediate need basis by begging, borrowing, trading and sometimes by personal arrangement with both naval and civilian benefactors in the United States.

In the near future, there will be a workshop for revision of the Medical Battalion's table of equipment. Our experience in Vietnam strongly indicates the need for planning a new system of medical supply as opposed to acquiring a new, fixed inventory. With the exception of the basic medical block and assured power sources, how can we project what future needs will be? Portable and possibly fixed generators must be directly available for medical use and indeed, medical support units should never again have to compete with combat units for these items. Only future circumstances can intelligently determine the content of the entire table. What our experience can positively tell us for tomorrow is that we will need a more direct, flexible, rapid and sensitive supply system for whatever items future conditions require.

As combat medicine calls for flexibility in systems, facilities and equipment, it must demand near miracles of its men: doctors, corpsmen and paramedical personnel.

## The General Medical Officer

The typical General Medical Officer arrived on the scene, fresh from a nonsurgical internship, and thinly disguised as a naval officer. No portion of this often-idealistic young man's background had prepared him for the task ahead.

His training in Field Medical Service School had pointed out that: it was dirty in the field; he could have been in better physical condition; war was noisy, frightening, exhausting, inefficient and the ultimate in waste. But ready or not, he was about to become a leader, an organizer of men and their activities. He had an inkling that he had joined a very unique fighting group, with a professional code as binding as his own.

## Function

By Marine Corps tradition, he accompanied his men to a point as close to enemy contact as practicable. There he often began his duty with a brief stint in the construction business, planning and building the bunker that housed his battalion aid station and perhaps would

save his life one day if he built it well enough. His days, he soon learned, often consisted of boredom and frustration punctuated by moments of sheer terror. Combat in his immediate area brought casualties into his aid station, but his work load otherwise was dominated by cases of a medical nature. He, too, was affected by the efficiency of Medevacs which were almost always able to overfly the aid station, taking the casualties to a fixed facility. In several instances, Division Surgeons with both the Third and First Marine Divisions saw the need to reassign some general medical officers from the field to their Medical Battalion in order to best utilize their professional abilities.

In this type of combat situation, where there is relative air superiority, effective helicopter evacuation, and proximity of definitive care facilities, the general medical officer can undoubtedly perform more effectively at the Medical Battalion. In keeping with current plans for the Physicians' Assistants and Aides programs in the Navy, it would seem prudent to consider using a Medic with this background at company and battalion levels. A well trained and experienced combat medical officer could consult and coordinate at the regimental level resulting in a more efficient use of medical manpower. But the combat conditions mentioned earlier must prevail.

### *Orientation*

Whether the general medical officer served with a unit in the field or in the Medical Battalion, he usually learned that he had had insufficient experience with traumatic emergencies. He felt that he could have used some refresher training in shock, resuscitation, control of major arterial bleeding, tracheotomy and insertion of chest tubes.

In other instances, he wished for a down-to-earth practical refresher session in the differential diagnoses of diarrheas, fevers of unknown origin and dermatologic conditions peculiar to the area of his assignment. His indoctrination at Field Medical Service School and at the First Medical Battalion had covered some of these but combat commitments often required his presence with his parent unit, interrupting the practical aspects of his training on arrival in Vietnam.

Because of such uncertainty, he is the first to recommend that this type of professional orientation be a part of the pre-deployment training package, and — most important — be given by someone with fresh on-the-scene experience.

### **The Medical Specialist**

With the exception of high points of enemy-initiated activity or major Marine operations, medical casualties

far outnumbered those of a surgical nature. Even the well-trained internists lacked depth in their knowledge of tropical medicine, especially in both diagnosis and management of difficult medical cases with limited diagnostic facilities, consultation and library source material.

Psychiatrists were not specifically oriented as to the management of combat casualties and some with more fixed methods of evaluation and management had a difficult time in reorienting their methods to most effectively manage the usual Marine psychiatric casualty. However, with on-the-job orientation and when adequate in number, the psychiatrists were able to provide rapid but effective evaluation. Often with only one interview, a couple of hot meals, and a good night's sleep, 80 to 85 percent of these basically healthy Marines could return to duty.

### **Surgeons**

In general, the combat surgeon was dealing with a group of healthy young men in superb physical condition. Moreover, the Marine casualty presented the highly desirable patient traits of cooperation, motivation and stamina.

Whether the surgeon was fresh from his residency or mature and experienced, there was no amount of civilian training or practice that could completely prepare him for the number of deaths and the magnitude of trauma he was to face. He had to make both emotional and technical adjustments.

There were times early in his tour when he felt that his professional integrity had been encroached upon as he relinquished some of his civilian prerogatives to individualize techniques, and adopted a more standard military approach to massive contamination and multiple-system wounding. Probably hardest of all to accept, were the professional compromises necessary to adapt to the tactical situation at hand.

Although physicians in the medical specialties could be oriented prior to arrival in a combat environment, we found it imperative to team the newly arrived surgeon with a more experienced one for varying lengths of time before giving him total responsibility for a serious battle casualty.

### **Triage Officer**

The highest form of this professional development was required for duty as Triage Officer. I recall an evening when, already busy with a steady flow of casualties, a convoy of Marine trucks simultaneously brought in over 70 wounded Marines, many of a serious nature and in shock.

In a mass casualty situation such as this, it was



## They cared enough to come....



RADM G. M. Davis, MC, USN, Surgeon General, (foreground) talks with: (L-R), CAPT Pentecost, Div. Dental Off.; CAPT Santiago Stevenson, Div. Surgeon; CAPT James Lea, C.O. First Med., and CDR Charles Moore, Chief, Professional Svcs.



A starlet who cared.



Our "boss," LTGEN Simpson, talks with patient on one of his frequent visits.



George Gobel — our funniest patient.



The late Gypsy Rose Lee with L/Cpl Doggette.



The invincible John Wayne. (Courtesy of CDR J. E. Howard, MSC, USN; AO Nav Hosp Port Hueneme, Calif.)



essential that the Triage Officer: exercise absolute control of the triage area and its personnel, moving rapidly and constantly, making assignments for treatment and disposition, but never involving himself to any greater extent with an individual patient; be aware of the exact number of casualties, the seriousness of their wounds and their general conditions at all times; receive up-to-date and continuing information from the Medical Regulator regarding the number of casualties inbound, as well as those in good enough condition for lateral transfer to other facilities; and remain constantly informed concerning the present and future availability of operating space, both minor and major.

Not only was combat surgical experience essential for this job, but on-the-job training with an experienced Triage Officer was of the utmost importance.

Professional leadership of this magnitude was not a common virtue. CDR Harry Keig, LCDRs Joe Bardenheier and Dave Lewis (who was awarded the Navy Cross) will be long remembered in this role.

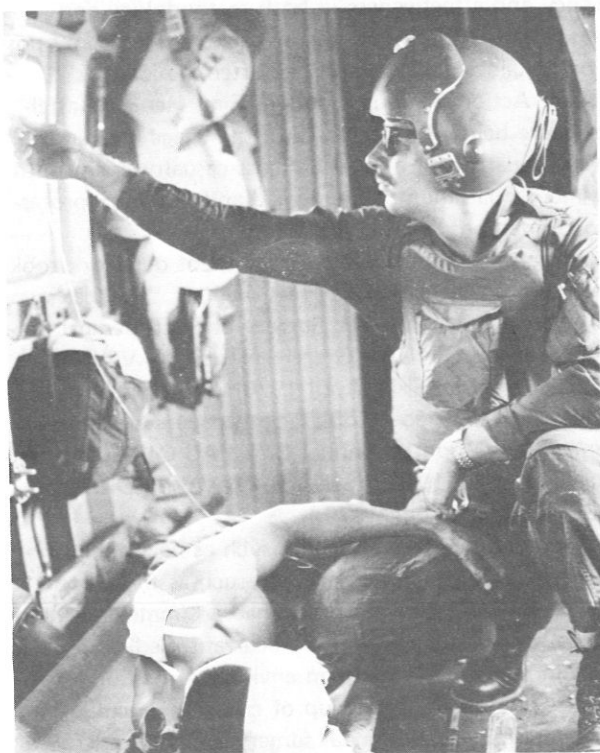
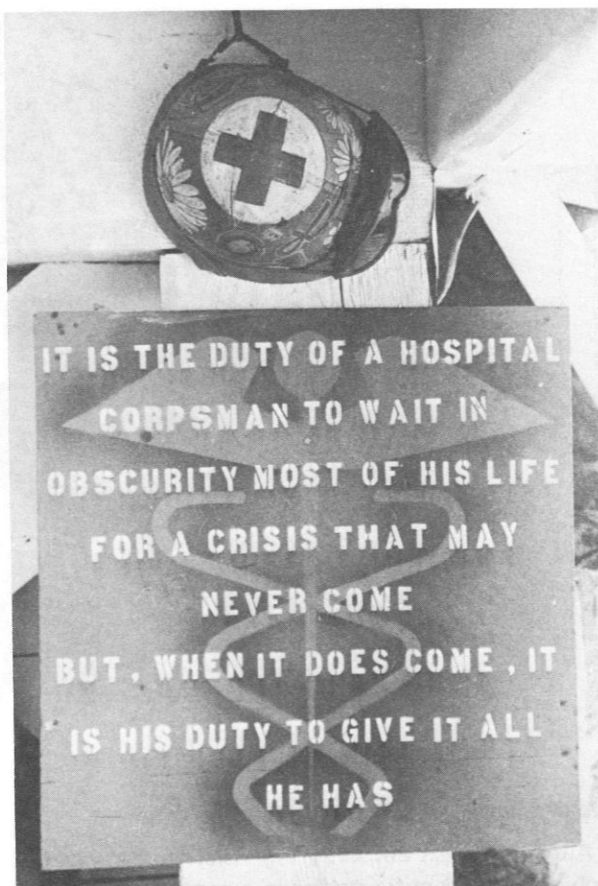
### The Combat Corpsman

He may have been grimy and sweating in his combat gear on an operation high in the steaming jungle of Charlie Ridge or gowned and gloved in the OR at Charlie Med. He may have been more a Marine than a sailor, such as recently-retired Chief Hospitalman Strickland who served 16 of his 24 years with the FMF and in Vietnam as First Sergeant of Charlie Company, "First Med." Or he may have been a new hospitalman such as Higley, who weighed little more than his combat gear and could have stayed in the rear. But he had come too far not to go where the action was and find out about himself. He was not lacking.

His identity lost except for the title "Doc" and a faint medicinal odor mingling with that of his sweat, the combat corpsman lives as a Marine. Patrolling in dust, changing occasionally to mud and vice versa, or in rice paddies with a sniper waiting for him to climb to the dryness of the dyke, he fills his dual role. An unseen trip wire, a blinding explosion, and everyone freezes except "Doc." He moves anxiously to the wounded man's side. Evaluation, first aid, establishment of priority and a Medevac call come rapidly in sequence. The now-smaller squad moves on to another scene. He grumbles neither more nor less than do those with whom and for whom he serves. This is his role and he fills it with a strong pride.

Young or old, salty or green, large or small, on the ward or in the bush, the combat corpsman is a professional, and the heart and soul of medical support of the Fleet Marine Forces.

This is the forward line of a dedicated team. But our obligations did not stop with the delivery of combat medical care.





## Reorientation

### *The Critique: An Unwritten Responsibility*

Although it was obviously impossible to carry out sophisticated scientific studies in a combat environment, there were many opportunities to improve efficiency and effectiveness in both methodology and equipment. A Critique, for instance, was not only possible but invaluable. Patterned after the Marines' "After Action Critique," ours at First Medical Battalion were held with personnel in the triage area and in every department, after each mass casualty crisis, until a smooth battalion plan emerged and optimum professional methods were agreed upon.

Sometimes a retrospective analysis of our work took the form of professional papers such as: "A Year's Experience in Orthopedic Surgery at First Medical Battalion" by LCDR Gary Gregersen (U.S. NAVY MEDICAL NEWSLETTER, April 1970); and a paper on Triage by LCDR Joel Tobias; both papers were presented at the Fourth Annual CINCPAC Conference on War Surgery in 1970. (See U.S. NAVY MEDICAL NEWSLETTER, July 1970.)

Short-term studies on topics such as heat exhaustion, diarrhea, and anemias of malaria, such as those conducted by LCDR Dave Earnest had an immediate value in the proper management of recurrent medical problems in our specific Vietnam environment. Long-term studies such as the follow-up of consecutive colon injuries and major abdominal surgery are still underway

by Dr. Stuart Wilson. Our own information on vascular grafting has been turned over to the U.S. Army Registry for incorporation into their long-term, follow-up studies. This type of information may well modify our view of certain surgical procedures deemed appropriate on the basis of short-term, follow-up.

Whether scientifically or informally derived, no opportunity to improve medical care should be knowingly ignored. An excellent and practical example is embodied in the development of the new field-medical bag or "Unit I."

### *"Our Bag"*

One night, while listening to a group of corpsmen complain about the small size, bulkiness and disorganization of the old Unit I, and noting that some of the corpsmen were carrying North Vietnamese medical bags, demolition and map bags, CDR C. L. Moore led the group into a specific planning session, out of which grew the new Unit I bag.

With the help of LTCOL Meeker and COL Schwartz of the G-4 Section, First Marine Division, an experimental 300 of these bags were produced in DaNang and then taken into the field by CDR Moore and myself. After a month or so, the corpsmen using them in the field were interviewed. Constructive criticisms and comments were considered and modifications of the bag were made until the final product submitted to the Marine Corps Field Research Lab required very little refinement.

Research and scientific studies are invaluable to successful combat medical practices, but at no time should they detract from the immediate and critical matter at hand—quality care of the combat Marine. At times, uninformed outside sources exerted considerable pressure to obtain scientific information that simply could not be accurately evaluated in a combat environment.

Realistic goals, strong motivation for improvement, the unfailing support of the Commanding Generals, and cooperation of Unit Commanders and their medical personnel led to constant progress in the medical care of the individual Marine.

### **The Civil Action Program**

The most unique, and for many, the most rewarding feature of duty in the Republic of Vietnam was our Civil Action Program.

The basic ingredient for the success of this program was the individual relationship between the combat Marine or corpsman and the Vietnamese villager. Admittedly, brutality occurred in the highly charged moments of a combat environment. However the typical young American, although violent in battle and critical of incompetence in his allies, could within moments become the most patient of teachers and the most compassionate of providers, sharing his own rations, clothing, and shelter.

It was a natural development and indeed a labor of love, then, for young Medical Service Corps officers such as LTs Joe Steiner and Bill McClanahan, with the help of dedicated corpsmen and Marines, to build a civic action program within the battalion.

During the period 1 January 1969 to 31 May 1970, approximately 30,000 Vietnamese patients were seen and treated at the battalion and on our MEDCAP visits. These visits were made on a regular basis in four hamlets, two in hostile surroundings and two at orphanages.

The S-5, or Civil Action Section established immunization programs with liaison between the Vietnamese Public Health Officials, for follow-ups of communicable diseases, a medical record system at the orphanages, and regular and equitable methods of excess food distribution.

We provided the labor and materials for erection of houses, schools, bridges, and not the least in significance, chicken and pig pens. Children's parties on holiday occasions, both at the battalion and at the orphanages, were delightful occasions, as much for those of us giving them as for the children. We established training programs for Vietnamese paramedical personnel both on an apprentice basis at the battalion as well as in the field, leading to recognition by Vietnamese certification and classification in their civilian promotion system.

The following quotations from two of the many letters received testify to the Vietnamese response. Rev. Nguyen van Do wrote: "On behalf of the Christian Youth Social Services Committee and its members throughout Vietnam, I sincerely thank you for your wonderful medical care which your doctors are doing to help my dear sister, Miss Mai, who was wounded on 11 May by VC mine. The task which you are doing to help my sister and many other Vietnamese citizens speaks for itself — the humanity and generosity." Another reads: "Dear Sir, I am M/Sgt Hung's wife interpreter. He death 7 month ago. I appreciation in sincerity thank you very much for your kind help. Me and my children had a home to live. . . I take an oath with God promulgate happy for you. With our best expression of best wishes. Yours sincerely." Despite the language barrier which confronts all of us, the thought comes through.

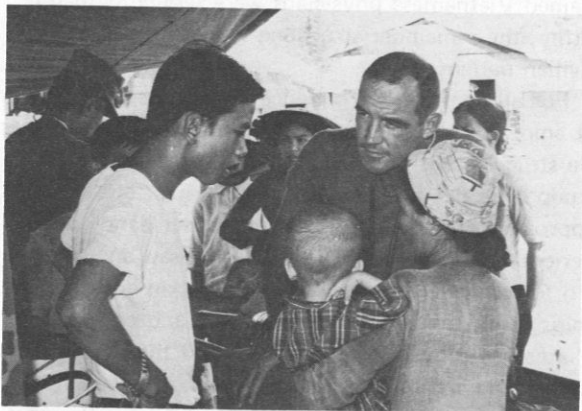
Controversy arose among our staff members about actively working in the DaNang medical center where an occasional Viet Cong or V.C. sympathizer, unidentified as such, was hospitalized. Some of us felt that rather than aiding the enemy we were practicing in accord with our own ideology, even if an occasional enemy were cared for. So, without command policy, a small but dedicated group of orthopedic and general surgeons (Drs. Hood, Coleman, Williams, Alafritz, Brief, Perry, Pauly, and others) regularly made their way into DaNang, often at significant personal risk, to scrub on difficult cases with the interns. I held regular teaching rounds in medicine, thereby seeing many hematologic problems never before encountered in my experience.

In general, the interns were academically well prepared at the medical schools in Hue and Saigon, which were staffed mostly by European faculty members. However, these young physicians lacked supervised clinical experience, obviously because the majority of trained Vietnamese physicians were serving with the Army, the remainder struggling with an overpowering civilian patient load.

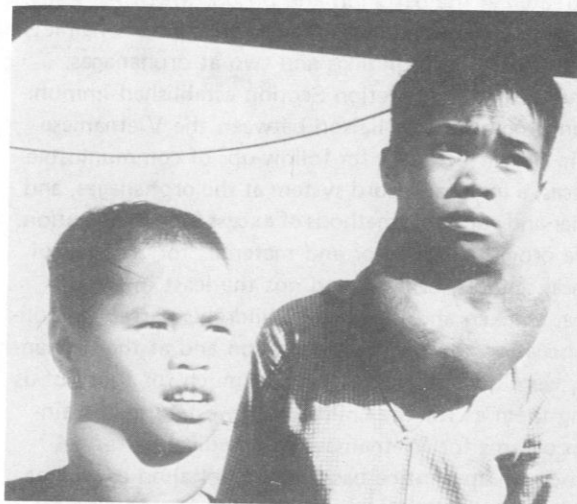
For all of us, the experience precipitated a spectrum of emotions. These ranged from intense frustration as we struggled with poor communication, inadequate equipment and facilities, and a lingering "old world" approach to patient care. On the other hand, we experienced immense gratification as we saw an intern begin to resemble a "new world" physician and as friendships formed with the few dedicated and competent Vietnamese physicians who supported the hospital and its training program. The same feelings prevailed in the field, but for each of us the Civil Action Program provided a special bridge of understanding. Whether one crossed it, or not, was a personal matter.



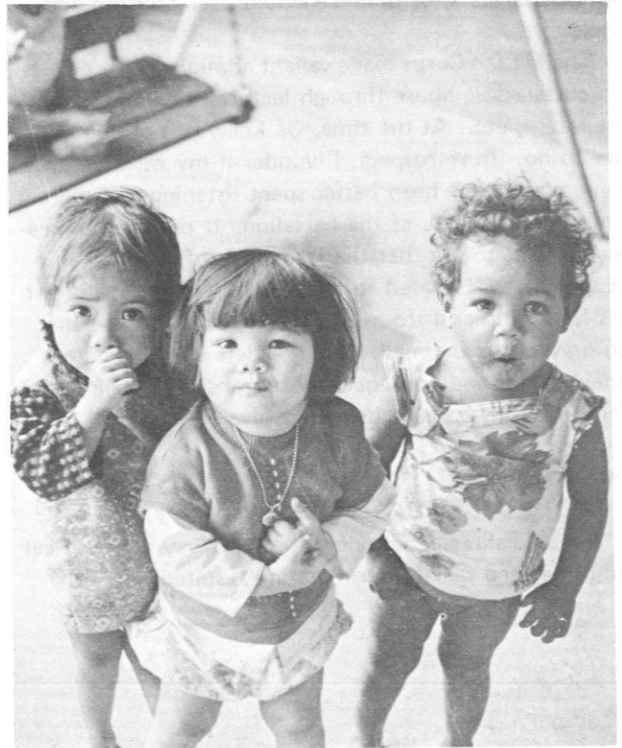
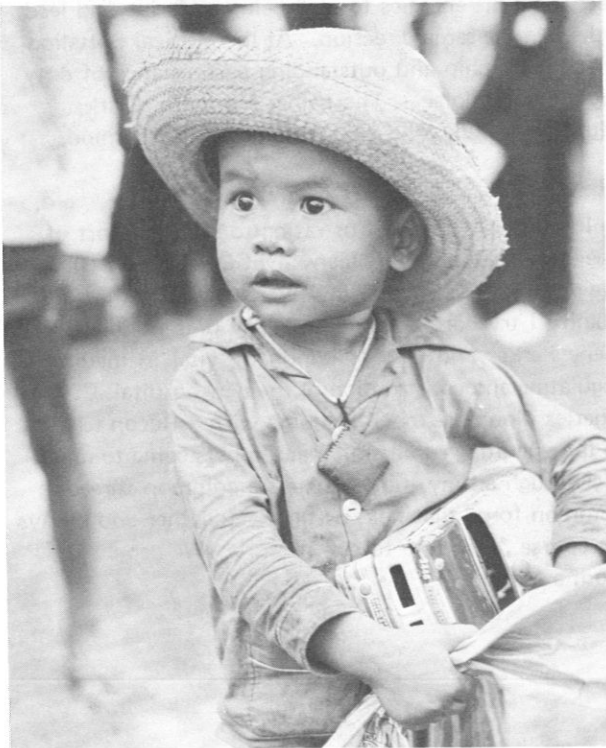
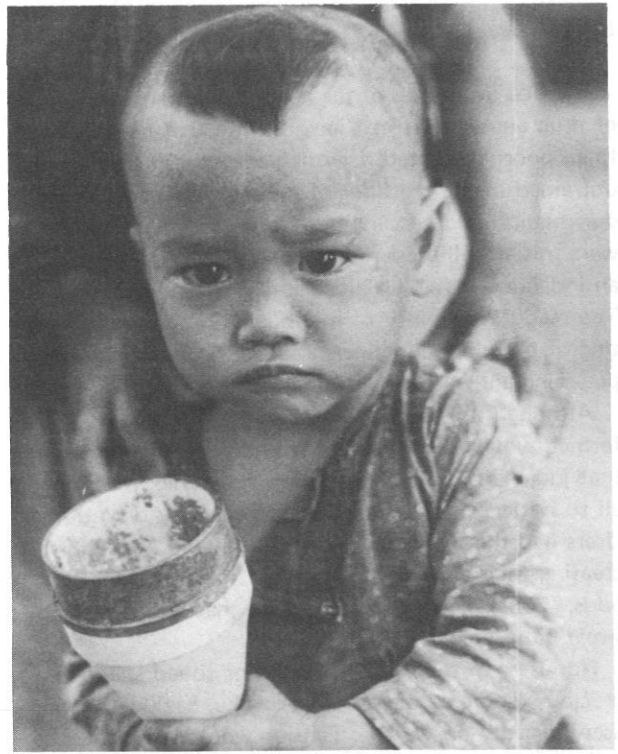
## They were cared about (Civil Action Program)...



(Lower photograph by courtesy of CDR J.E. Howard, MSC, USN; AO Nav Hosp Port Hueneme, Calif.)







## People Problems

### *Drug Abuse*

My first awareness of the need for group management of drug abuse came in Vietnam. Most of us arrived there poorly oriented regarding the drug problem and untrained in the methods of control. Preoccupied with our mission and keeping body and soul together, we were initially ill-prepared to cope with drug abuse on an individual basis, let alone in significant numbers. The ready availability of marihuana in an emotional setting of boredom, loneliness and fear produced an overpowering and sometimes lethal combination for some.

Although an occasional act of heroism was performed while "on a high," it rapidly became apparent that judgment, depth perception and reflex reaction, all so critical in combat, were impaired by drug use. Users had the choice of dulling their fears while increasing their risks or staying "up tight" with better odds. Some convinced themselves that "grass was no sweat" and died proving it.

Nonusers in the same fire team or squad spent their precious moments of rest wide-awake, backing up the user allegedly on watch. Tension would sometimes become intolerable, resulting in exposure of the user, forced transfers, or unprecedented peer pressure and violence.

The Marine Corps made valiant administrative efforts to curtail drug abuse through lectures, demonstrations, literature, etc. At the time, we knew of nothing better to do. In retrospect, I wonder if my own lecture time could have been better spent listening and talking to my own people at the battalion. It became progressively clear to me that the frequency of drug use in a given unit was related to its availability, the quality of its leadership and troop morale. I firmly believe that in units, large or small, where leaders are closest to their troops and consequently responsive to their problems, drug use was at its lowest level.

### *Racial Problems*

Prejudicial racial behavior was a two-way street. Real and imagined racial discrimination resulted in band

formation by black Marines. Their meetings, public or private, gave rise to often unfounded suspicion and mistrust, frequently resulting in a white "backlash" which only compounded the problem.


In the Marine Corps where tradition is so strong, discipline so vital and the buddy system imperative, this phenomenon of polarization might have been disastrous.

With a small unit in the field, where black and white Marines must pull together to stay alive, there was little problem. However, in the rear, many blacks struggled together for racial identity by various means, some violent. At this point, the Commandant of the Marine Corps wisely loosened the bonds of tradition, allowing reasonable Afro hair styles and "black power" greetings. Some non-coms felt that the entire system was threatened, and indeed, there were a few dark days of confrontation.

However, from out of this turmoil, there emerged healthy beginnings of a new era: First, the admission that prejudicial actions had occurred; second, the realization that racial identification does not preclude identification as a Marine; and most important, that channels of two-way communication were opened. Successful unit endeavors to achieve a better interracial relationship often hinged on the black leader. Having achieved personal identity as a black, he could then rechannel his energies toward being a Marine and lead others in the same direction. At the Medical Battalion, black leadership and outstanding performance of duty were commonplace. The names Monteiro, Clark, Murphy, Owens, and others come easily to mind.

### **Conclusion**

In closing, I find it frustrating to stop so short of adequate tribute to so many: LCDRs (MSC) Bill Weidner and Ken Darr, my executive officer whose quality I try hard to emulate in my present role; LTs Gene Parker and George Windham, vital in medical regulating and construction of the new hospital; CDR Charles Moore, as much at home with a Recon team as in the operating room; and many others come to mind.

Through all my thoughts runs a common thread, a common force that held us tightly together and always on course. I choose to call it esprit. We caught it from a Marine. 

# Pulmonary Contusion In Combat Casualties

## An Unsolved Management Problem

By LCDR Jack L. Ratliff, MC, USNR, Surgery Department, University Medical Center, Jackson, Miss.; LCDR John R. Fletcher, MC, USN, Surgery Department Naval Hospital, Bethesda, Md.; and CDR Claude Atkins, MC, USN, Surgery Department Naval Hospital, Oakland, Calif.

### Introduction

Pulmonary injuries and combat casualties have received more emphasis in our Southeast Asian involvement than in previous conflicts. There are many types of pulmonary injury seen in Vietnam. Pulmonary contusion is a prominent feature of many of them. It may occur when high energy shock waves act on lung tissue. Shock waves may be produced by blunt trauma, explosions propagated through air or water or by missile wounds to the chest. It has been estimated that 25% of auto accident deaths are associated with

major thoracic injuries (1) in which contusion probably plays a significant role.

We saw several patients die from pulmonary contusion at the First Medical Battalion, First Marine Division in DaNang and at the Naval Support Activity Station Hospital in DaNang, RVN. We attempted to improve survival in this high-risk group by applying a treatment regimen based on suggestions taken from the literature and our own experience with the lesion.

### Background

The nature of the blast as largely unraveled by Schardin (2), Benzinger (3), Rossle (4), and Desaga (5) in 1945, consists of some combination of three phenomena. The first is the *spalling effect* which occurs as a shock wave in which a liquid bounces off the surface releasing energy and disrupting the surface at that time. An example we have all seen is the spray dome occurring above a depth charge. The *implosion effect* is associated with the overexpansion of bubbles (alveoli) following the compression phase of a blast. The *inertial effect* is the shearing stress created between heavy hilar and light alveolar structures with differential acceleration. The alveoli are sheared off the heavier

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This study was partially supported by ONR Grant NR105.62 and represents research experience compiled at the First Medical Battalion, First Marine Division, DaNang, RVN. The work was partially accomplished at the former Naval Support Activity Station Hospital in DaNang, RVN.

A report of this effort has been published in greater detail in the Journal of Thoracic and Cardiovascular Surgery, October, 1971.

The opinions expressed herein are those of the authors and do not necessarily represent the views of the Navy Department, the Bureau of Medicine and Surgery or the naval service at large.



hilar structures because they accelerate faster. These three effects combine to open vessels and airways. Death results from left-sided air embolism or from exsanguinating pulmonary hemorrhage (drowning in one's own blood).

### Materials and Methods

From October 1, 1969 through April 15, 1970, all patients admitted with injuries capable of producing pulmonary contusion, who presented hemoptysis and chest X-ray studies compatible with a diagnosis of contusion, were treated according to the following plan. Sedation and conservative fluid therapy were utilized to suppress pulmonary hemorrhage and edema. Positive pressure ventilation was avoided where possible to discourage air embolism. Antibiotics and oxygen were used liberally. In cases of unilateral contusion, an effort was made to keep the "bad lung" down in order to promote sequestration of any continued bleeding into the lung that was functioning poorly. When pulmonary surgery was performed, an endotracheal tube was wedged in the bronchus of the "good lung" or a Carlen's tube was employed for the same reason, to protect the good lung.

### Results

We treated nine patients as outlined and lost seven of them. Four casualties had sustained air-blast injuries and presented with thermal burns (they were actually in the fire ball), mottled chest X-rays, and hemoptysis. Each presented additional assorted lesser injuries, none of which should have been lethal independently. All of the latter four patients died. The other five patients sustained tangential chest wall injuries and three of them succumbed.

None of the patients were wearing body armor when injured.

### Discussion

Although pulmonary blast injury and missile-induced contusion were uncommon, they did present difficult management problems. Pulmonary contusion in these patients progressed. Oxygen enrichment and eventually volume-limited respirators were required, employing ever-increasing positive pressure to maintain ventilation. Arterial air embolism was demonstrated in one patient.

The high mortality rates encountered led us to consider several adjuncts to therapy. Are digitalis, steroids, diuretics, colloid loads and sedation helpful in the treatment of pulmonary contusion? How much positive pressure is safe in these patients? Is an occasional positive pressure sigh as dangerous as continual positive pressure ventilation? Will more patients die from the

atelectasis which our treatment plan tends to promote, or from the hemorrhage and the air embolism that may develop in the face of positive pressure ventilation and active coughing? What is the natural history of repeated doses of aspirated blood? In an apparent unilateral contusion, does the "good lung" deteriorate as a result of aspiration of blood or because of undetected severe injury that was present from the start? In severe cases of pulmonary contusion treated by early lobectomy or pneumonectomy as Geiger recommends (6) in principally unilateral lesions, does oversewing or resection of the most involved area jeopardize survival by forcing the entire pulmonary flow through the blast-involved area thereby increasing the tendency to bleed and consolidate, or does it tend to promote survival by eliminating the principal source of hemorrhage and by reducing the degree of shunting? Answers to these questions are needed and could be obtained through appropriate animal studies.

Some cases of severe bilateral pulmonary contusion are unsalvageable by current modes of therapy. In such cases, unilateral lung homoplasty could provide temporary relief. Sufficient time might be gained for the remaining lung to heal before rejection of the transplant occurred. The transplant could then be resected when the patient's own injured lung regained sufficient function.

Partial pulmonary by-pass by veno-arterial perfusion through a membrane oxygenator might also be used for severe cases of contusion. Partial by-pass of the lungs will reduce pulmonary pressure and thus decrease the tendency for hemorrhage. Increasing the arterial saturation will prevent death from hypoxia. Although this type of therapy would require anticoagulation measures, it might be lifesaving in cases of pulmonary contusion when other modes of support have been exhausted.

### Summary

We feel that this data clearly supports the conclusion that although we understand the etiology of blast-wave injury, we don't know how to treat it. Animal models relevant to the human situation should be easily produced and studied.

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6. Geiger, J. P.; Fischer, R. P.; Guernsey, J. M.; and Thomas, D. E.: Pulmonary Resection: The Treatment of Choice For Pulmonary Contusion Due to High Velocity Thoracic Wounds (A Preliminary Report). U.S. Army, Republic of Vietnam Medical Bulletin, Pamphlet 40-20:26, 1970. 

## UNIT AWARDS

### MEDICAL

#### Navy Unit Commendation

3rd Medical Battalion

3rd Marine Division

7 July 1965 — 20 February 1966

1 January 1968 — 31 March 1968

#### Meritorious Unit Commendation

Preventive Medical Section

1st Medical Battalion

1st Marine Division

20 January 1968 — 15 December 1968

25 August 1969 — 16 November 1969

#### Company "C"

1st Medical Battalion

1st Marine Division

16 January 1968 — 19 April 1968

1st Medical Battalion

1st Marine Division

3 April 1968 — 15 May 1969

*Time and space limitations preclude a complete listing of all unit awards bestowed on medical personnel in a collective sense as members of forces in combat. The unit awards listed here were awarded specifically, and independently, to the medical organizations indicated.*

### DENTAL

#### Presidential Unit Citations

5th Marine Regiment

Detachment, 1st Dental Company

25 April 1967 — 5 June 1967

1st Marine Aircraft Wing (Rein)

11th Dental Company

28 March 1966 — 15 September 1967

1st Marine Division (Rein)

1st Dental Company

29 March 1966 — 15 September 1967

3rd Marine Division (Rein)

3rd Dental Company

29 June 1961 — 15 September 1967

Task Force 79.4 Support, 3rd Marine Division (Rein)

Detachment, 15th Dental Company

18 May 1967 — 15 September 1967

26th Marines (Rein)

Detachment, 3rd Dental Company

20 January 1965 — 1 April 1965

#### Navy Unit Commendations

Battalion Landing Team, 3rd Battalion

1st Marines

Detachment, Dental Company

9th Marine Amphibious Brigade, FMF

23 January 1968 — 16 April 1968

Battalion Landing Team, 2nd Battalion

4th Marines

Detachment, Dental Company

9th Marine Amphibious Brigade FMF

5 March 1968 — 31 May 1968

Headquarters III MAF

6 May 1965 — 30 June 1968

3rd Medical Battalion


3rd Dental Company ( — ) assigned

7 July 1961 — 20 February 1966

#### Meritorious Unit Commendation\*

1st Dental Company, 1st Marine Aircraft Wing

23 March 1966 — 21 March 1969

*\*This represents a specific, individual award bestowed on the 1st Dental Company. *

# History of 1st Medical Battalion

By CAPT J. W. Lea, Jr., MC, USNR

On 6 September 1940, First Medical Battalion was activated at Quantico, Va., in support of the First Marine Brigade operating in the Caribbean. On 1 February 1941, the Brigade was reorganized and redesignated First Marine Division, F.M.F., and the Medical Battalion took on its present form.

In August 1942, most of the Battalion landed at Guadalcanal in support of the Division's assault there. In late 1943, elements of the Battalion landed at Cape Gloucester and other areas in New Britain in support of action against the enemy. In September 1944, and in April 1945, the Battalion landed at Peleliu and Okinawa respectively, participating in the seizure and occupation of these islands. First Medical Battalion was awarded a Presidential Unit Citation for its action in each of these three campaigns. In September 1945, the Battalion arrived at Tientsin, China serving there until May 1947, when it redeployed to Camp Pendleton, Calif.

In September 1950, three companies landed at Inchon, Korea; participating in action against the enemy. The Battalion later served at Wonsan, Chosin, Pusan, and Lonhak. For its service during the five-year Korean campaign, First Medical Battalion received three U.S. Presidential Unit Citations, three Korean Presidential Citations and two Navy Unit Commendations prior to returning to Camp Pendleton in 1955.

On 15 August 1965, Charlie Company disembarked at Chu Lai, RVN, and as other companies arrived, they were deployed in support of various Third Marine Division operations in the Quang Ngai, Chu Lai, and Tam Ky areas. By May 1966, all elements of First Medical Battalion were in the country and attached to the First Marine Division. In January 1967, the Command Post was moved to its final location near Da Nang. Although certain collecting and clearing companies were deployed individually in support of large operations, the Battalion remained in its basic location except for a deployment to Phu Bai from April to September 1968, in support of Task Force X-ray. In 1969, following extensive damage from Ammunition Supply Point One explosions, Southeast Asia huts in the operational area were replaced with air-conditioned Butler buildings by Mobile Construction Battalion Five. In 1970, 400 beds were under the administrative control of First Medical Battalion.

Various companies of the Battalion have received three Presidential Unit Citations, two Navy Unit Commendations and Meritorious Unit Citations; the entire Battalion has received one Presidential Unit Citation and one Meritorious Unit Citation during the Vietnam conflict.

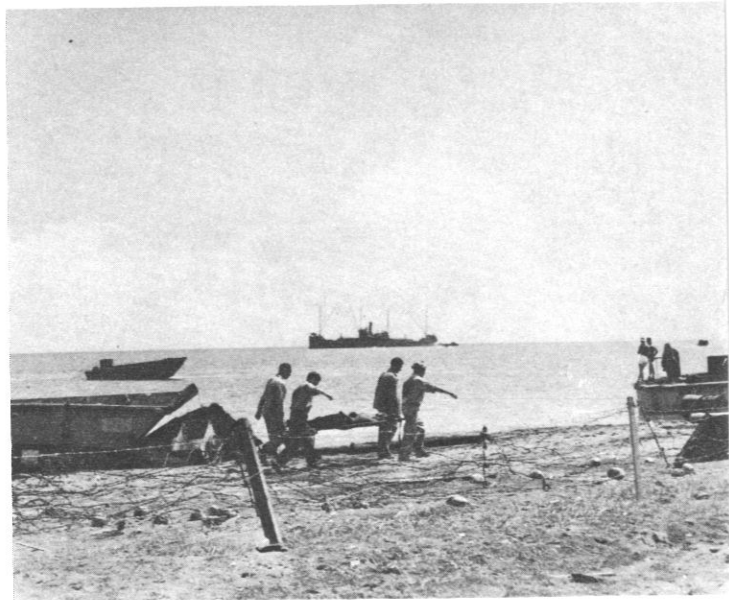
In the summer of 1971, the Battalion returned to Camp Pendleton once more.

## WORLD WAR II

*Right:* Along the beach at Guadalcanal.

*Bottom Left:* Navy Corpsmen attend wounded Marines brought to a front line dressing station in the Solomons.

*Bottom Right:* Men wounded in action D-Day on Peleliu, Palau Islands, were carried on stretcher to the S.P. evacuation station.



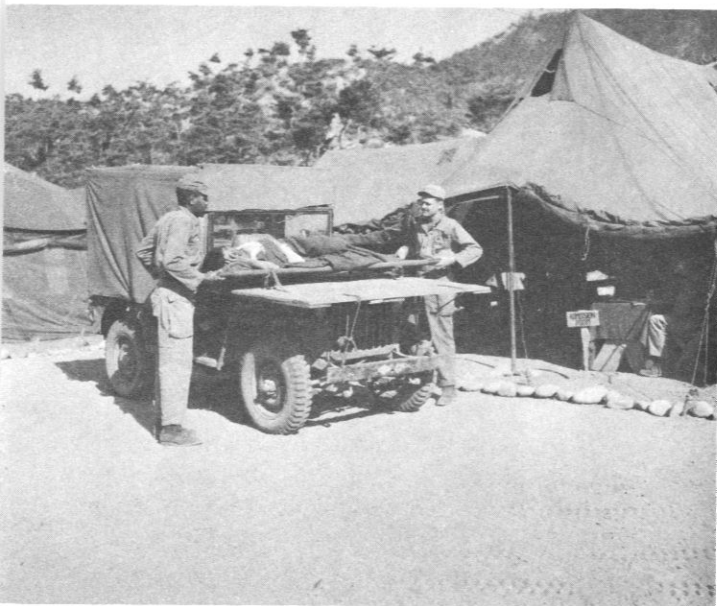


## KOREAN CONFLICT

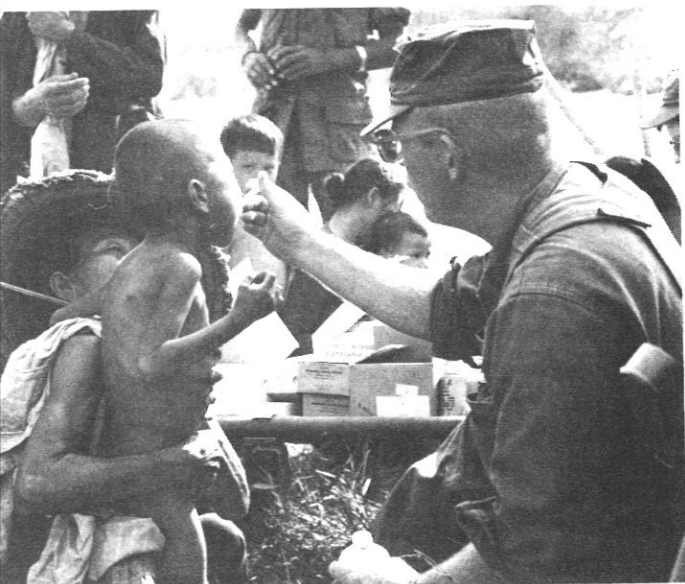


*Left:* Note stretchers being attached to helicopter for evacuation.

*Bottom Right:* Wounded Marine being carried from front lines to a forward aid station.



## VIETNAM CONFLICT



*Top Left:* Marines of 1st Battalion lift a wounded comrad to a Medevac helicopter near An Hoa village complex.

*Top Right:* LT Joseph A. Bardenheier III, MC, USN (receiving instrument) leads the 1st Medical Battalion surgical team in an operation at the Hoa Khanh Children's Hospital — a 120-bed, Marine-sponsored facility. HN2 Gary Lockwood (2nd from left) offers assistance to Vietnamese nurse as LCDR James B. Lockhard, Jr., MC, USN (2nd from right) employs suction.

*Left:* Navy Corpsman treats sick child on a county fair nine miles southeast of Da Nang. 🇺🇸

# ESPRIT AND MAG-13

*By LCDR John J. Bouvier, MC, USN,\* Naval Hospital,  
San Diego, California.*

Volumes have been written about esprit de corps, yet much remains untapped which can never be written. Whatever may have prompted flight surgeons to volunteer for Vietnam duty with the First Marine Aircraft Wing, and despite their ultimate attitudes and views on the subject, each one was touched by an undefinable bond that can never be obliterated by time, distance, or status in military or civilian life. Although the limits of logic were frequently strained by methods employed to accomplish an objective, equipment was utilized beyond any conceivable design-life and individuals possessing all degrees of intellect, skill and motivation miraculously found a common ground to accomplish the most with less, little or nothing.

This writer arrived at Chu Lai, RVN, in March of 1969 with Marine Fighter-Attack Squadron-232 after a nine-month interval at MCAS, El Toro, Calif. The rather light-hearted spirit of a ten-day TransPac became deadly earnest on the sand-blown runway of Chu Lai. Flares illuminating the nearby hills and the thuds of

friendly ("outgoing") or the soon-to-be-familiar "incoming" rockets had inspired the appropos nickname of "Rocket Alley." The midnight evacuation of a plane captain with suspected acute appendicitis from Wake Island to the Naval Hospital on Guam two nights before became but a faint memory.

Marine Aircraft Group-13 was then composed of four F-4 Phantom squadrons and two support squadrons. The Field Dispensary and other buildings had folded their original hard-backed tents and were now housed in plywood Southeast Asia huts with corrugated tin roofs, which let in a few less bugs and much less sand than their predecessors. The major fringe benefit of Chu Lai Air Base was the four-mile stretch of pure white sand and surf of the South China Sea. MAG-13 had also been the final duty station for two flight surgeons.

MAG-12, the older brother of MAG-13 at Chu Lai by-the-sea, with its Dispensary located directly on the beach, qualified as the most ideal medical billet in the First Wing, if such an entity existed in a combat zone. The remainder of the Chu Lai complex was composed of the Army Americal Division Headquarters, a Navy Swift Boat unit, two Army Hospitals, a Marine Engineer unit, a Seabee unit, and two Swift Boat civilian construction companies (replete with Korean laborers).

The MAG-13 population averaged 3,000 with a maximum of 3,600 and a low at one point of 2,500. The

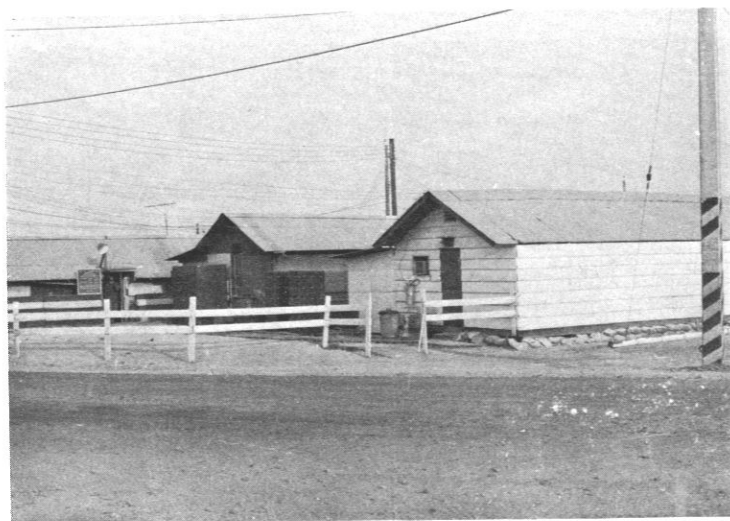
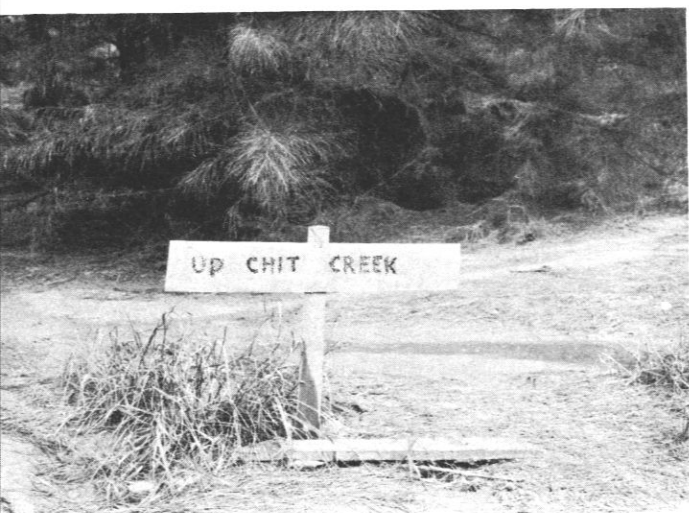
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\*The author spent nine months at the Marine Corps Air Station, El Toro, Calif., and arrived at Chu Lai, RVN in March 1969 with Marine Fighter-Attack Squadron-232, to practice medicine at Marine Aircraft Group-13 Field Dispensary. Upon request, he provided the accompanying pictures and this vivid narrative account of a tour of duty in Vietnam with the First Marine Aircraft Wing.



cantonment roughly resembled a small town. A water supply had been installed and some areas of living quarters boasted septic tanks and toilet facilities; the majority of living areas depended upon more primitive facilities for accommodating natural functions. Burn-out four-holers and urine-oils, so well described in field manuals, provided a daily challenge in the prevention of certain diseases which could do more to render a combat air group ineffectual than any enemy action.

Manuals describing and outlining procedures for establishing expeditionary field dispensaries, battalion aid stations, field sanitation, and the like are plentiful. The Field Medical Service Schools make an outstanding contribution in preparing those who are to practice in the combat zones. Nothing can completely prepare the individual for the "real thing," however. Excerpts from the Embarkation Manuals could be reprinted here, but

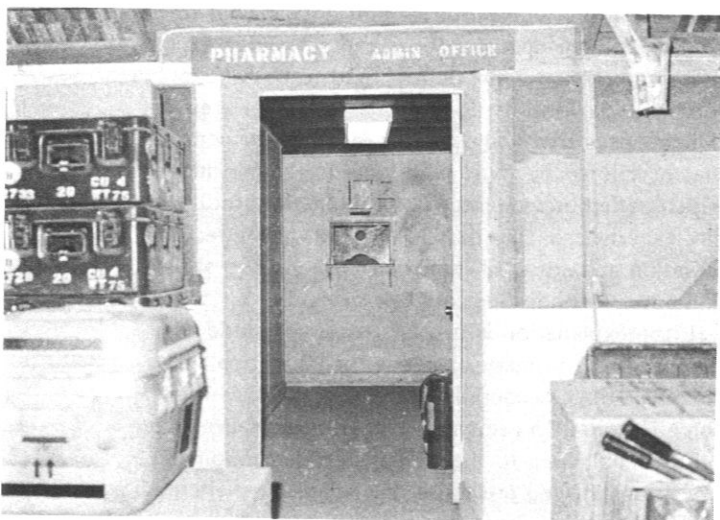
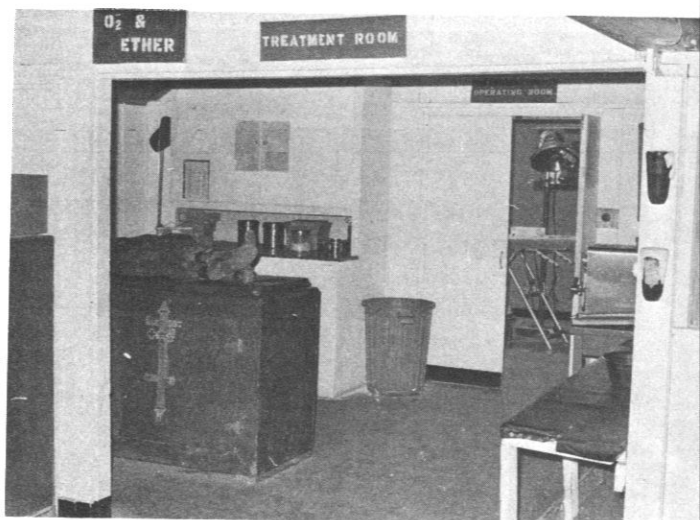
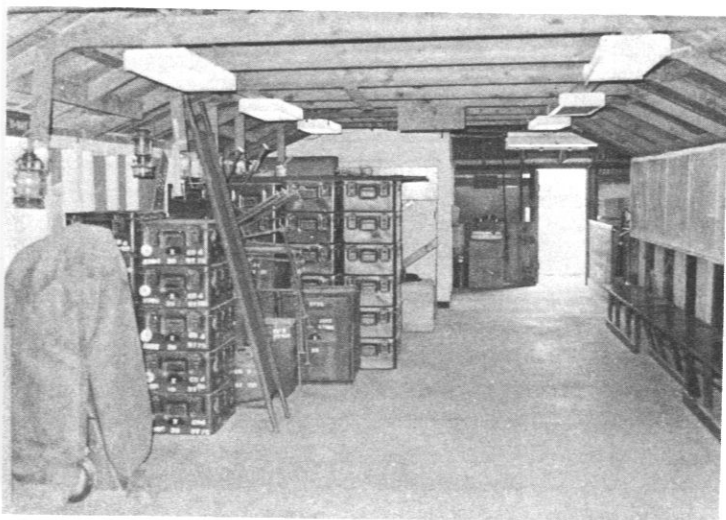
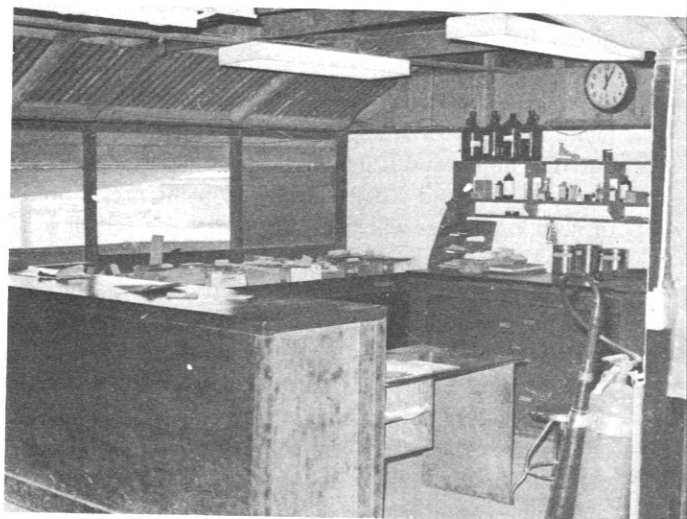


nothing can be found in print that details what to do with equipment designed for use in a 180-day expeditionary operation which is supposed to be functioning four years beyond its designed usefulness. Herein lay the challenge that could be met, avoided, or completely ignored by those who volunteered for duties which defied understanding or explanation until actually experienced. No better laboratory for direct observation and study of individual responses to stress and adverse conditions could be devised.

Little explanation is necessary to understand that combat is the primary objective for all Marine Corps training. First, second and third-tour Marines (and some Hospital Corpsmen on second tours) have little problem adjusting to the business at hand. Some physicians, having previously led relatively sheltered lives in acquiring professional skill during the several

years preceding their RVN tour, exhibited various patterns of adjustment in an entirely new environment. Some were in constant misery ruminating about their wasted year; others experienced marked mood swings associated with involvement and activity, and depression and withdrawal; others passed through the normal initial phase of bewilderment reflecting on the wisdom of their volunteer choice, emerging with a healthy resolve to make the most of the year and made the year pass rapidly by actively "getting with" the Esprit de Corps.

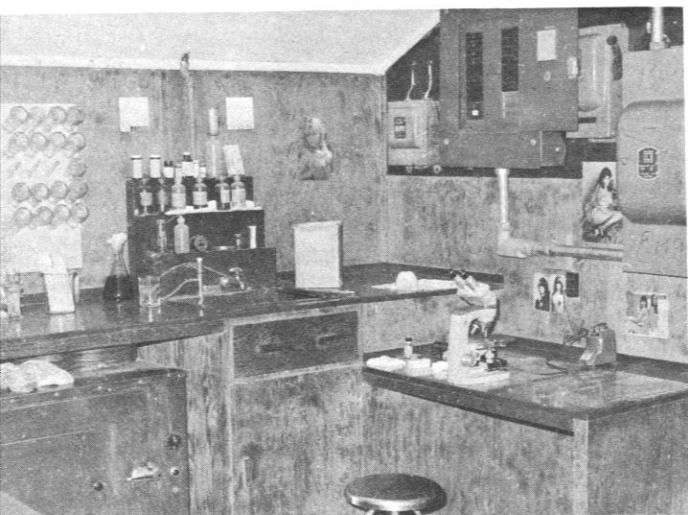
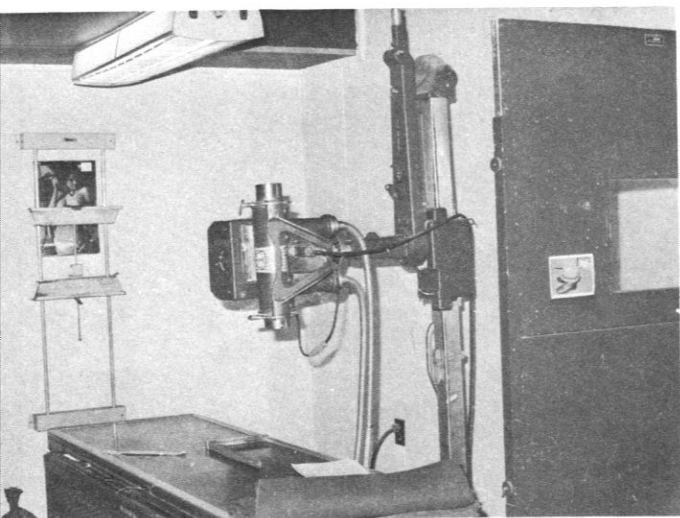
The young and healthy population of MAG-13 rarely presented a serious clinical challenge to the physician. The proximity of two large Army hospitals, always willing to gain a pair of extra hands, allowed for a constant source of surgical and medical experience open to those who wanted it. Although frequently and



vehemently debated, complaints of boredom and medical stagnation seemed directly proportional to an individual's lack of interest in himself and others.

It is granted that a university medical center MAG-13 Field Dispensary was not. It was true that the Medical Department was the Public Health watchdog, water supply advisor, construction design referral agency for sanitation facilities, antagonist of existing messing facilities, backdoor psychoanalyst for aircrews and ground support crews of aircraft valued at three to four million dollars a copy, aid station for social disease acquired locally and out-of-country, and referral agency for Korean workers and local Vietnamese in need of medical attention.

Probably that which had once been regarded as the least interesting or stimulating of all medical school subjects, suddenly assumed major importance —

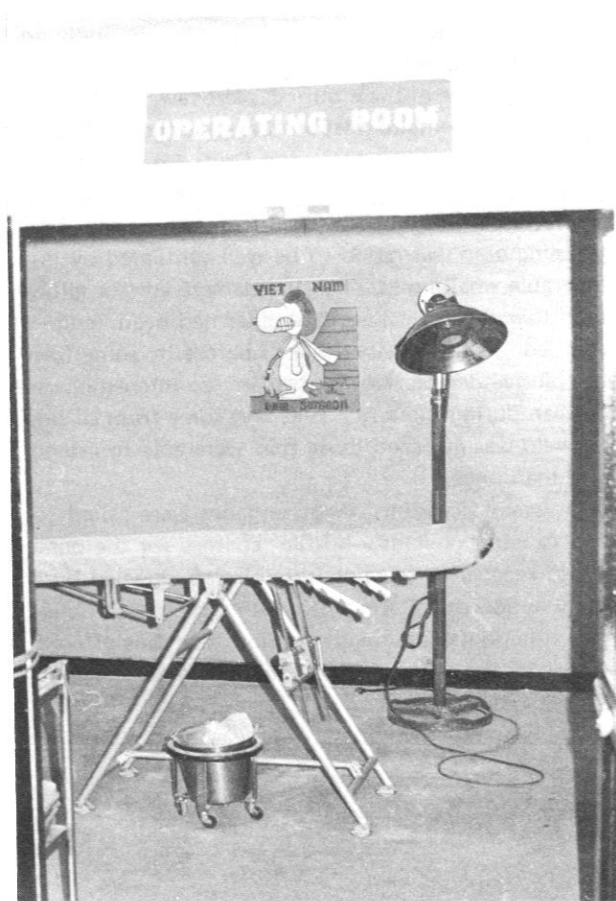


Preventive Medicine. Initially a lecture series was instituted for all new arrivals which emphasized the real presence of malaria, heat exhaustion/stroke, social disease (both genital and pulmonary), filariasis (from local snail population), the need for personal hygiene, and other problems encountered in an area which was not like "back home."

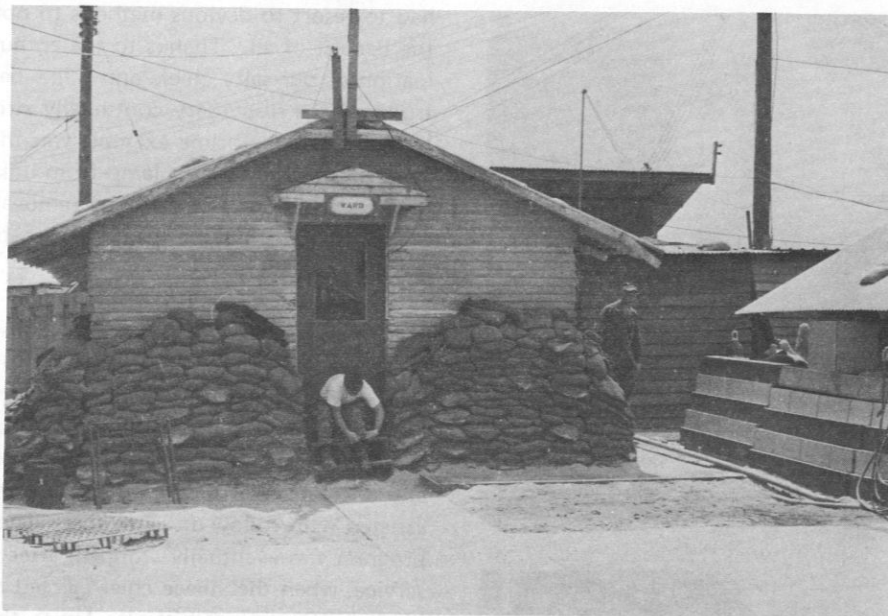
Sanitation probably claimed the most "stimulating" and provocative of all undertakings. The basic idea was to enforce standard regulations and demand "state-side conditions," anticipating that the result would be at least minimally acceptable. Such emergent conditions as a dysentery outbreak traced to a mess hall food handler, jet fuel in the water supply, a sociopath in charge of the water point contaminating the well, and similar episodes would lead eventually to needed improvements. In some cases the Medical Department

had to resort to devious methods to obtain action for the benefit of all. Thanks to the enthusiasm and imagination of our salty chiefs and a few befriended troopers, the dispensary continually strove to improve its services. One prime example was the fortuitous acquisition of a new slit lamp from unknown sources. Many a man-hour was saved by removal of foreign bodies which otherwise would have had to have been referred elsewhere.

There were several other methods of alleviating medical boredom besides R&R and the "Refresher Course In Tropical Medicine" at NAMRU-2 in Taipei, Taiwan. MAG-13 Dispensary ran a small dispensary in the local Vietnamese village of An Tan. A corpsman ran sick-call there for five and one-half days per week, bringing any difficult cases to the main dispensary; one doctor assisted with follow-up cases three days per week. This program was eventually stopped, after two years of service, when the village chief elected to use the improved office spaces himself. Up to that time the dispensary had averaged 2,500 patient visits per month. MedCaps were also held at two coastal fishing villages 20 and 45 miles south of Chu Lai, primarily reached







by Swift Boats but occasionally by Army helicopters. These visits were necessarily irregular due to the fact that any scheduled visits usually produced an increased number of gunshot wounds or similar injuries in a village where young men were seldom seen. Friendly advisors were usually absent or quite nervous during these MedCaps. Some of these outings were rewarded by fire fights or by automatic-weapon fire while the MedCap team was being returned to the Swift Boat in a friendly sampan. One particular visit was attended by slightly more tension than usual from the onset. The hut being used was noted to be well ventilated by innumerable small holes. The Vietnamese advisor glibly noted that the assistant village chief had been "compromised" in this hut two nights before by some form of explosive device. However, many an interesting case was seen during these sick calls and some form of positive help was afforded those that were able to attend more than once.

On several occasions, flight surgeons were called upon to enter obviously hostile territory for the purpose of recovering remains from aircraft downed by enemy action or by accident. Although not an obligatory function, some might consider that this offered another means of sober diversion. From another point

of view it was considered obligatory because those that went down were personal friends and there was always the remote chance that someone might have survived. On one unusual occasion, the accident investigation team including corpsman and flight surgeon found themselves being "extracted" by a line when security teams reported enemy movement near the crash scene. On New Years Day, 1970, the incredible sensation of hanging 80 feet under a helicopter, 8,000 feet above the deck, for a 15-mile ride back to base was experienced. The wind was cool and the sun was shining brightly. The effect was exhilarating, to say the least.

In closing, one is prompted to advocate the old proverb to make the best of what you have. Fortunately it seems that only the more humorous or "good times" are recalled from less than desirable situations and these provide an endless source of old sea stories. The experience at the MAG-13 Field Dispensary was much more than this, however. There was the satisfaction of attempting to do the best job possible, and the pleasure of working with dedicated Hospital Corpsmen and Marines whose support and experience proved invaluable. Esprit de Corps is simply undefinable. I am grateful to the Marine Corps for allowing me to share in that spirit. SEMPER FIDELIS! 🇺🇸



# Heat Acclimatization

By LCDR Adolph R. Dasler, MSC, USN; Head, Heat Stress Laboratory, Environmental Biosciences Department; Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md. 20014.

## Introduction

The impact of heat stress in military operations assumes three tangible forms of expression: (1) Increased total combat strength through loss of personnel; (2) Reduced combat effectiveness of a man and/or unit; and (3) Failure of a mission. The majority of the factors related to these forms of operational impairment result from conflicts between the military and physiological requirements of personnel, the most important of which is the lack of sufficient heat acclimatization to perform a moderate amount of sustained physical work.

General guidelines for heat acclimatization were based on outstanding research conducted by the U.S. Army during World War II. Physiological criteria utilized since then have remained essentially the same, with minor modifications by various researchers to reduce the time of physical work and length of exposure per day to achieve statistically significant results. Unfortunately, the induced responses failed to meet the current demands of the Marine Corps. This pointed to the disparity between statistical and physiological significances. In view of increased needs to maintain a

highly mobile force, an accelerated program was begun at the Naval Medical Research Institute in 1967 to study basic factors of heat acclimatization in the working man.

## Approach

A number of environmental physiology parameters were monitored in both moderately and extremely active personnel during a field investigation in the I Corps area of Vietnam in 1967. At the same time a special meteorological monitoring station was established and maintained for 18 months. A comprehensive approach to the monitoring and assessment of physiological responses to progressive heat acclimatization was developed using the most recent technological advances. An integral part of the program was to devise a simple method for equalizing the physical conditioning status of test subjects prior to starting a lengthy series of controlled heat stress exposures. By the summer of 1968 the first full length studies of basic human responses commenced using the new experimental design based upon background information derived from numerous previous studies and those conducted in Vietnam.

As of this date six groups of volunteer test subjects have been studied:

- I. Untrained-Unacclimatized (8 men)
- II. Laboratory Trained-Unacclimatized (8 men)
- III. Laboratory Trained-Laboratory Acclimatized (8 men)
- IV. Field Trained-Field Acclimatized (13 men who were extremely active in field missions in Vietnam)

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The opinions or assertions contained herein are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

V. Field Trained-Field Acclimatized (14 men who were moderately active in field missions in Vietnam)

VI. Field Trained-Field Acclimatized (21 men who were mildly active in field missions in Vietnam)

All of the subjects in Groups IV, V and VI lived in Vietnam and performed the indicated types of physical activity during no less than eleven months service in Vietnam terminating four or five days prior to being evaluated. These same subjects, plus those in Group I, were tested for two hours while working in a cool environment and were then examined in the same manner during a two-hour exposure to a hot-humid environment which simulated the summer climate of Vietnam. Group II underwent an incremental physical conditioning program during ten consecutive days, immediately followed on the eleventh day by the same hot-humid exposure noted above. Group III underwent the same training program and heat exposure as Group II, except that Group III continued the heat exposures for ten consecutive days, followed by periods of reexposure to the heat stress every five days, for up to nine weeks. The working metabolic rate of all test subjects was controlled at a level higher than that employed in any prior studies of heat acclimatization.

Digital magnetic tape and strip chart and analog strip chart recordings were made of all segments of each experiment. During the control, test and recovery segments of the experiments, recordings were made by both continuous and high speed scanning, of ten skin and three deep-body temperatures, heart rate, respiratory minute volume, oxygen consumption, electrocardiogram and appropriate environmental temperatures. Treadmill speed and grade were continuously scanned by the high-speed recorder when the subjects performed work at a fixed metabolic rate. Systolic and diastolic blood pressure were recorded intermittently during rest and work using a unique electronic technique.

Blood specimens were obtained during each segment of the experiments, urine was obtained only during the control and recovery periods, and sweat specimens were collected during the last ten minutes of the first-half of each hot-humid exposure. Multiple biochemical analyses of the blood, urine and sweat specimens were made. Sweat rates were determined by using corrected weight loss.

### Findings

The overall physiological performance of the laboratory trained-laboratory acclimatized men was equal to the best and proved better than the majority of the field trained-field acclimatized men, Groups IV, V and

VI respectively. Of the four classical parameters used to assess heat acclimatization, only two (rectal and skin temperatures) were reliable in making cross comparisons between the six groups of subjects. However, a number of the nonconventional parameters (i.e., deep esophageal temperature, blood pressures while working, estimated cardiac output, estimated total vascular resistance, etc.) provided greater sensitivity in detecting physiological strain as well as adaptation to heat stress. Heart rates were not a reliable measure of cardiovascular strain. The heart rates of the untrained-unacclimatized men were lower than the heart rates of the field trained-field acclimatized men in Group VI; however, a complete reversal of this relationship was observed in comparing systolic blood pressure values during work performed by these two groups of subjects. Estimated cardiac output, a more complete composite of cardiovascular response, was the major cardiac factor which specifically delineated each group of test subjects.

Untrained-unacclimatized men exhibited the greatest evidence of total physiological strain upon exposure to heat. The quality of performance of the field trained-field acclimatized men varied directly with the level of physical activity pursued while in the heat of Vietnam. In contrast, the laboratory trained-laboratory acclimatized men, within 15 days after starting heat acclimatization, performed consistently in a manner equal to the best group (Group IV) of the field trained-field acclimatized men. Total body thermal equilibrium was achieved very early in the heat exposures for the laboratory trained-laboratory acclimatized men, followed in rank order by Group IV. Thermal equilibrium was barely achieved by Group V, and not at all by Groups VI, I and II.

Contrary to views expressed in the literature, sweat rates were considerably lower than expected for those men who performed without any evidence of physiological strain. The decreased sweat rates became evident in the long-term acclimatization phase with the laboratory trained-laboratory acclimatized men, and were compatible with the low sweat rates observed in the best field trained-field acclimatized men (Group IV). Coincident with the steady decrease in sweat rate, the data compiled from urine studies indicated a marked reduction in renal loading.

### Conclusions

It is apparent that there is much more to heat acclimatization than is available in the literature. Results of this study have shown that two of the four classical parameters are not reliable indicators of heat acclimatization, particularly if one is trying to cross-compare



trained and untrained men. Estimated cardiac output is a highly reliable index of cardiovascular strain in working men, and proved to be the best cardiac indicator for differentiating between any of the groups of test subjects.

Low sweat rates in the well-adapted men were accompanied by near normal urine osmolalities. Since low skin temperatures were found in association with the low sweat rates, it is likely that the higher sweat rates reflect inability of the body to conserve water by sweating mechanisms. Furthermore, high water loss by sweating resulted in a diminished availability of body water for normal renal function. Evidence of renal

loading was observed in the urine/plasma osmolality ratios which were increased to 5.0 in the severely stressed men.

There is strong evidence that the incremental physical conditioning and heat acclimatization technique used in this study has produced an advanced state of heat acclimatization. The advanced heat acclimatization was sufficient to demonstrate that reasonable balances and overall conservation mechanisms can be brought to play for operational environments, provided man can be prepared physiologically to meet reasonable demands of the situation. ☸

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(Continued from p. 55)

was further aggravated by the paucity of training and available supply support. The success of the MUST in Vietnam must therefore be attributed to the personal dedication and initiative of the personnel involved. Most important, however, is the conclusive proof that the MUST as a system is adaptable to the FMF.

The decision has been made by the Marine Corps to begin a procurement program of the system. As with any innovation, it is recognized and accepted that the MUST will bring with it new and different problems and challenges. It also offers significant advantages over the present system and these advantages far outweigh any disadvantages.

The Marine Corps does not intend to sit back with the MUST and relax. MUST as a system, and as an item of hardware, represents only the first step into a completely new generation of field medical facilities. Just over the horizon and beyond the MUST lie new concepts and improved field medical facilities to be

explored. For example, new concepts of field medical support are being examined which may reduce the medical assets required to support a given force while at the same time providing better and quicker casualty care. The completely modernized field medical facility will play a major role in future developments.

The Marine Corps has demonstrated its commitment to improving medical facilities by programming approximately 40 million dollars for MUST over the next five years. In the present atmosphere of financial constraints, this total represents a significant portion of the entire Marine Corps procurement budget. This expenditure will make it possible to completely equip FMF medical facilities such as Collecting and Clearing Companies, Marine Air Wing hospitals, and Hospital Companies.

It is now up to the Medical Department, as a practical demonstration of good faith, to ensure that the progress already made will continue until the ultimate goal of quality field medical treatment is finally reached. ☸

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## WAGE PRICE FREEZE

WASHINGTON, D.C. (NAVNEWS). . . The President's order for a 90-day freeze on wages and prices has affected servicemen and DOD employees in a number of ways.

Basic pay longevity increases, special pay increases for medical and dental officers, and incentive pay increases for flying and submarine duty which did not have an effective date prior to September 1 are suspended.

There are some exemptions to that ruling, however. It does not apply to prisoners of war, men missing in action, hospitalized persons wounded in action, and men in pay grade E-1 with four months of service.

For civilian employees, decisions made concerning the effect of the Presidential Wage-Price Freeze on those paid from appropriated and nonappropriated funds have been promulgated by SECNAV Notice 12530 of 20 August 1971. ☸

# DENTAL SUPPORT - USMC

**By DTCM (Master Chief Dental Technician) Walter J. De Baun, USN  
Administrative Assistant to The Dental Officer  
Headquarters, U. S. Marine Corps, Washington, D. C.**

The Navy provides dental service and support to the U.S. Marine Corps by assigning dental personnel to all aspects of the Marine Corps establishment. From the special staff office at Headquarters Marine Corps to the smallest dental detachment in the field, Navy dental personnel serve as an integral part of the Navy/Marine Corps team. Our mission is not only to support combat effectiveness by maintaining the dental health of Marine personnel, but also to amplify and extend the services of the medical personnel when needed — especially in combat.

Dental support to the U.S. Marine Corps commenced with orders for the first naval dental officer of 4 August 1913. He was Acting Assistant Dental Surgeon, Lucian C. Williams, who reported to Parris Island, South Carolina. Our present supporting strength is reflected by current billets for 279 dental officers, 11 Medical Service Corps officers, and 493 dental technicians.

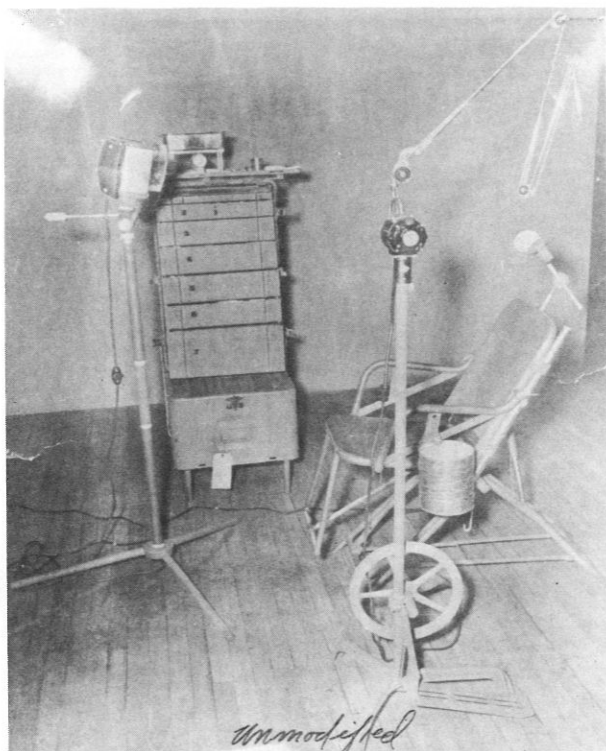
## **The Dental Company**

CAPT L. M. Smylie, DC, USN, reported to Headquarters, U.S. Marine Corps as the first Staff Dental Officer in July 1955. This assignment had constituted additional duty for CAPT C. E. Allen and CAPT F. C. Snyder, DC, USN. Through the efforts of these officers

and others, the momentous task of developing the dental company concept was completed. This concept was first implemented in July 1955 with the signing of the Table of Organization by the Commandant of the Marine Corps, which authorized the Force Dental Company (ground). Following that, the 1st, 2nd, 3rd, 4th, and 5th Force Dental Companies were soon formed. In June 1956 the Division of Aviation, Headquarters, U.S. Marine Corps also accepted the dental company concept. The 11th, 12th, and 13th Dental Companies were activated in January 1957.

The dental companies are organic to a Fleet Marine Force under the overall command of the Force Commander; they are assigned to major Marine Corps organizations, with command and operational control passed to the commander of the major organization. The primary purpose of the dental companies is to provide maximum professional service to their command and timely dental support to combat or other Fleet Marine Force operations. A Force Dental Company is organized to provide dental support to a Marine Division, Aircraft Wing, or Force Troops elements.

The Force Dental Company, as a unit, will not normally participate in an initial landing of a Fleet Marine Force combat operation. Detachments may be



This equipment was modernized for use during the Korean conflict.

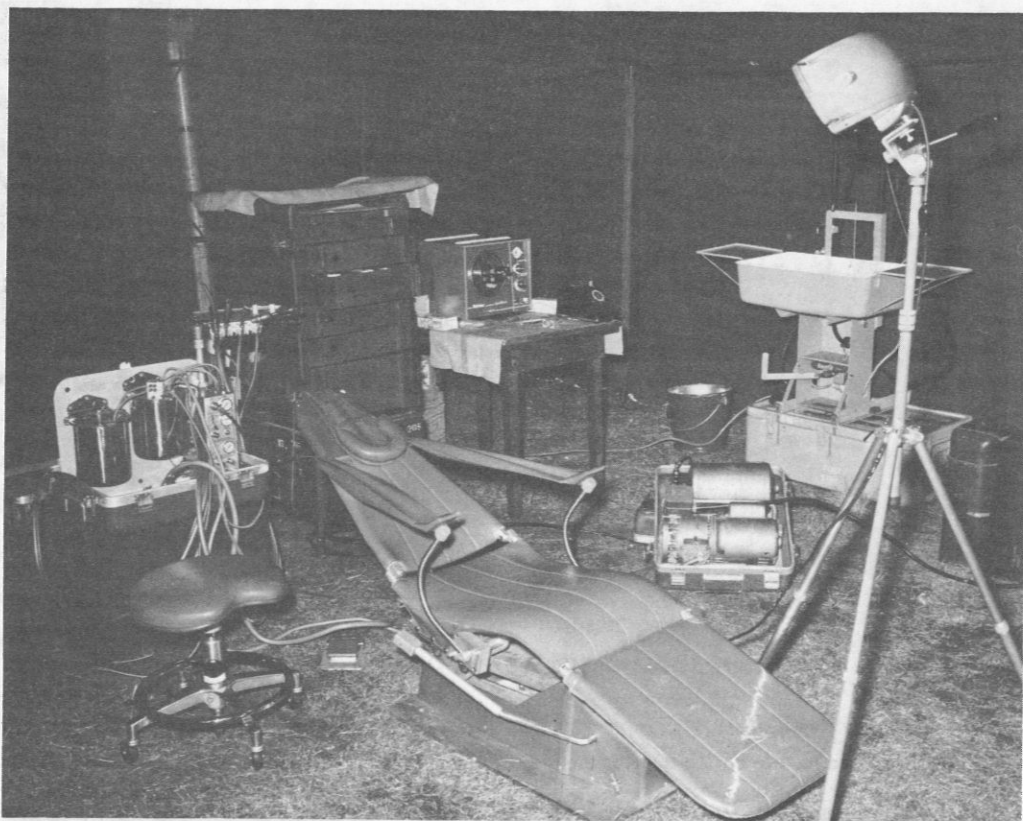


This equipment was extensively used during World War II.



Dental Officer and Dental Technician during First Aid training at FMSS.

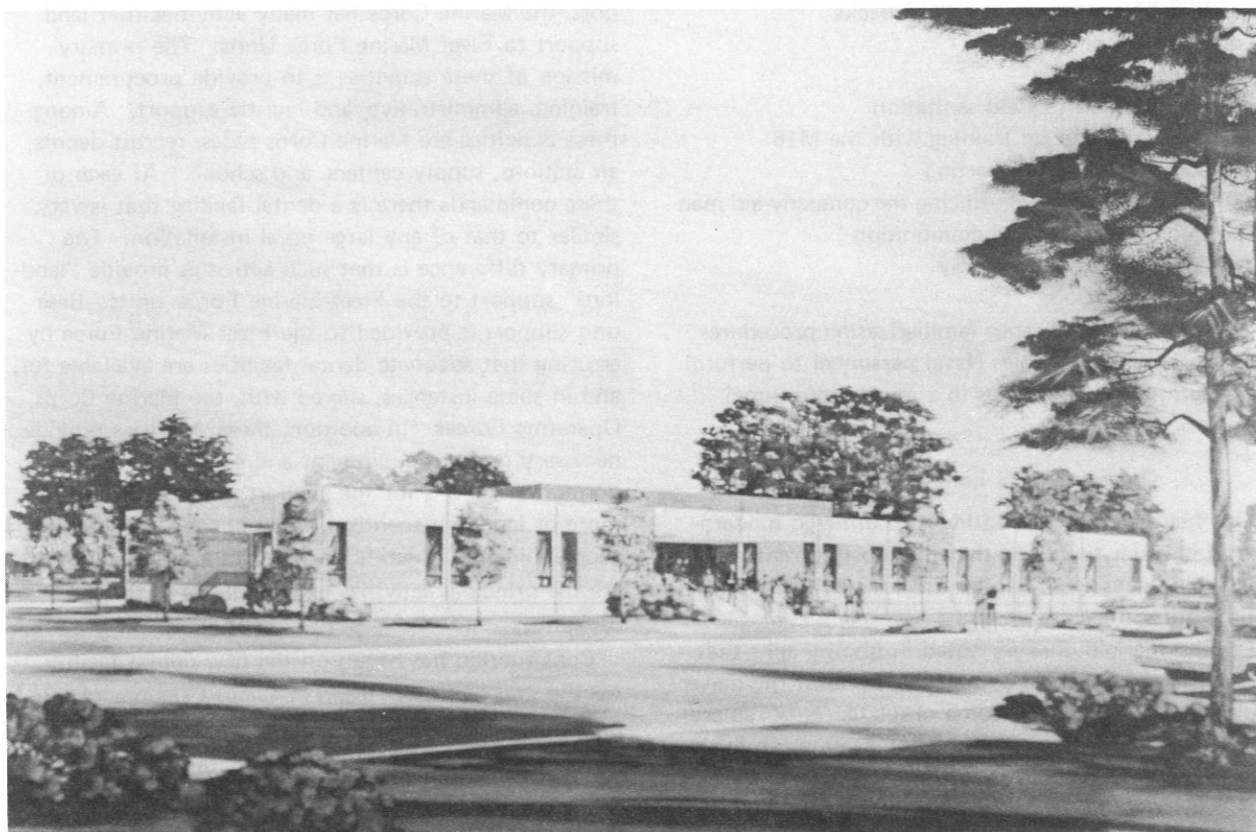




This is the equipment in use today.







Artist's conception of new Dispensary and Dental Clinic at Marine Corps Base, Camp Lejeune, N. C.

assigned temporarily to medical collecting and clearing units to afford first-aid talent for maxillofacial and dental injuries. Maximum dental service effort is concentrated where needed as soon as practical after a beachhead has been established. The Force Dental Company's organization is designed to permit a great degree of flexibility and mobility. This concept provides for subdivision or splinter units, thus, allowing situational demands to dictate the strength requirements of the mobile teams. The ability to fragment the dental company ensures support to separate or independent Marine units, thereby providing the required dental support under all conditions. The validity of the dental company concept was tested in Vietnam and proved successful beyond all expectations.

Twenty-four dental officers, one Medical Service Corps officer, forty-two Navy enlisted personnel and four enlisted Marines compose the dental company. The company can accomplish all of the technical maintenance of its field dental equipment, first echelon maintenance of its other organic equipment, and performance of the organic supply functions. The 1st, 3rd, and 11th Dental Companies, and segments of the 15th Dental Company, participated in Vietnam oper-

ations. The required dental support was provided by over 80 dental officers, and 200 dental technicians in direct support of Marine Corps units.

#### Specialized Training

Prior to assignment to a dental company, personnel are provided with specialized training. Some, but not all of this training includes instruction in the subjects listed below.

1. Casualty Care Training
  - a. Asphyxia and means of resuscitation
  - b. External cardiac massage
  - c. Cricothyroidotomy
  - d. Snake bite identification and treatment
  - e. Shock and fluid replacement therapy
  - f. Emergency treatment of fractures
  - g. Venipuncture technique
  - h. Practical application of field first aid and the chain of evacuation
  - i. Self-aid and Buddy-aid
  - j. Triage and evacuation
2. Other Specialized Training
  - a. Leadership
  - b. Marine clothing

- c. Individual equipment USMC packs
  - d. Body armor
  - e. Physical training
  - f. Introduction to field sanitation
  - g. Indoctrination on training with the M16
  - h. Combat casualty reporting
  - i. Tactical maneuvers utilizing the company aid man
  - j. Smoke grenades and ammunition
  - k. Combat medical resupply
  - l. Combat patrols
  - m. Rifle and pistol range familiarization procedures
- Individual training enables Naval personnel to perform their Marine-oriented duties in a more professional and proficient manner.

#### Organic Dental Field Equipment

Our field equipment continues to undergo modernization in order to ensure that the most current treatment techniques are available and utilized in the most remote areas.

Despite marked changes noted in photographs that depict past and modern equipment, some of the newer equipment has already become obsolete. New replacement items are programmed for implementation in the near future.

#### FMF Unit Support

In addition to the dental company concept of sup-

port, the Marine Corps has many activities that lend support to Fleet Marine Force Units. The primary mission of these activities is to provide procurement, training, administrative, and logistic support. Among these activities are Marine Corps bases, recruit depots, air stations, supply centers, and schools. At each of these commands there is a dental facility that is very similar to that of any large naval installation. The primary difference is that such activities provide "land-lord" support to the Fleet Marine Force units. Base unit support is provided to the Fleet Marine Force by assuring that adequate dental facilities are available for, and in some instances, shared with, the Marine Corps Operating Forces. In addition, these activities provide necessary garrison equipment and supplies to sustain normal operations for the support units while they are more or less permanently located in their specific geographic area. Marine Corps bases and air stations are the principal activities or commands in this category.

Construction has begun on the new dental facility for the 2nd Marine Division at Camp Lejeune. Appropriations are programmed and the new construction for FY 72 is anticipated for two dental facilities which are sorely needed at Marine Corps Recruit Depot, Parris Island, S. C., and Marine Corps Recruit Depot, San Diego, Calif. 🇺🇸

### MILITARY PAY REVISED

WASHINGTON, D.C. (NAVNEWS). . . The new basic pay, plus basic allowance for quarters (BAQ) and subsistence pay (COMRATS), is here compared to the old scale. There are no basic pay increases for officers or enlisted personnel having over two years service; they receive increase in BAQ instead.

These approximate figures provide a good idea of the percentage pay increase that can be expected by commissioned officers. Figures shown are rounded off to the nearest hundredth.

Pay Grade	Present Pay	New Pay
O-6	\$24,800	\$26,400
O-5	\$19,800	\$21,100
O-4	\$16,500	\$17,600
O-3	\$13,500	\$14,500
O-2	\$10,200	\$11,000
O-1	\$ 7,800	\$ 8,700 🇺🇸

# Mobile Dental Facility For Amphibious Support

*By CAPT Kirk C. Hoerman, DC, USN; Commanding Officer,  
Naval Dental Research Institute, and; CAPT William B. Shreve, DC, USN; Chief, Clinical  
Investigation Division, Naval Dental Research Institute; Great Lakes, Illinois 60088.*

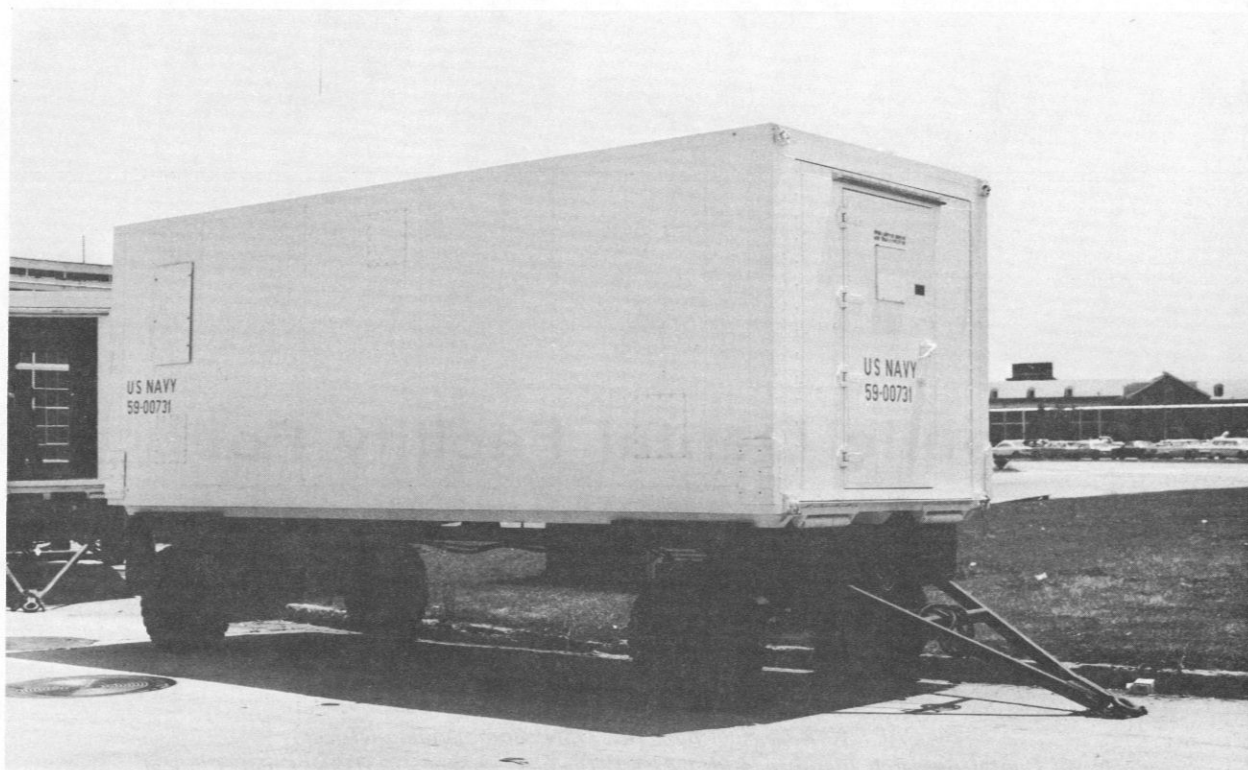
The Naval Dental Research Institute, Great Lakes, Ill., has been tasked with development of an effective system for providing operative and oral surgical dental care for Naval and Marine Corps personnel during amphibious operations.

A Short Airfield for Tactical Support (SATS) van was selected for the project. The van has been in the Navy system for about 10 years, and has been configured for over 35 different missions, including meteorology and photography labs, electronic repair shops, and missile guidance centers. The initial or "breadboard" van has been completed. A second van, intended as a prototype, is under construction utilizing "lessons learned" from extensive field testing of the first van.

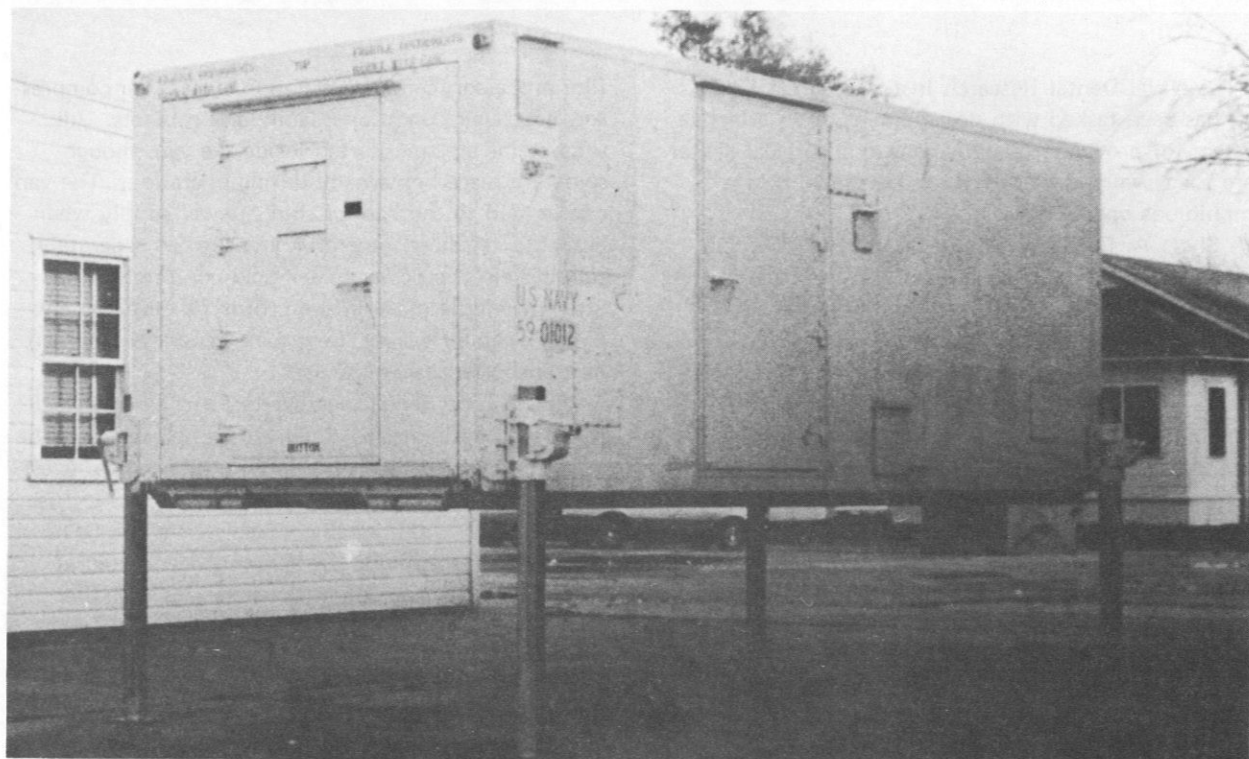
The test van weighs about 5,500 lbs. and is equipped as a two-chair dental facility. Equipment includes air-powered dental operating units, light-weight contour chairs, sterilizers, X-ray unit, automatic X-ray

film processor, central evacuation system, air compressor, heater/air conditioner, sink, and cabinets. All subsystems are transported inside the van, though some are placed externally during operation. The van can be tied to the base or ship's power supply when available. A diesel generator, transported separately, supplies electric power under field conditions. An attempt will be made in the prototype development to use a lighter weight, gasturbine generator that can be transported inside the van.

Vans can be joined together to form a dental facility of any desired size. Such van complexes could be used at advanced bases, precluding the need to invest in permanent facilities for which only temporary use is envisioned. Additionally, single vans could be rotated aboard ships without dental officers, used at pierheads, or in any situation where it is desirable to bring the treatment to the patient.

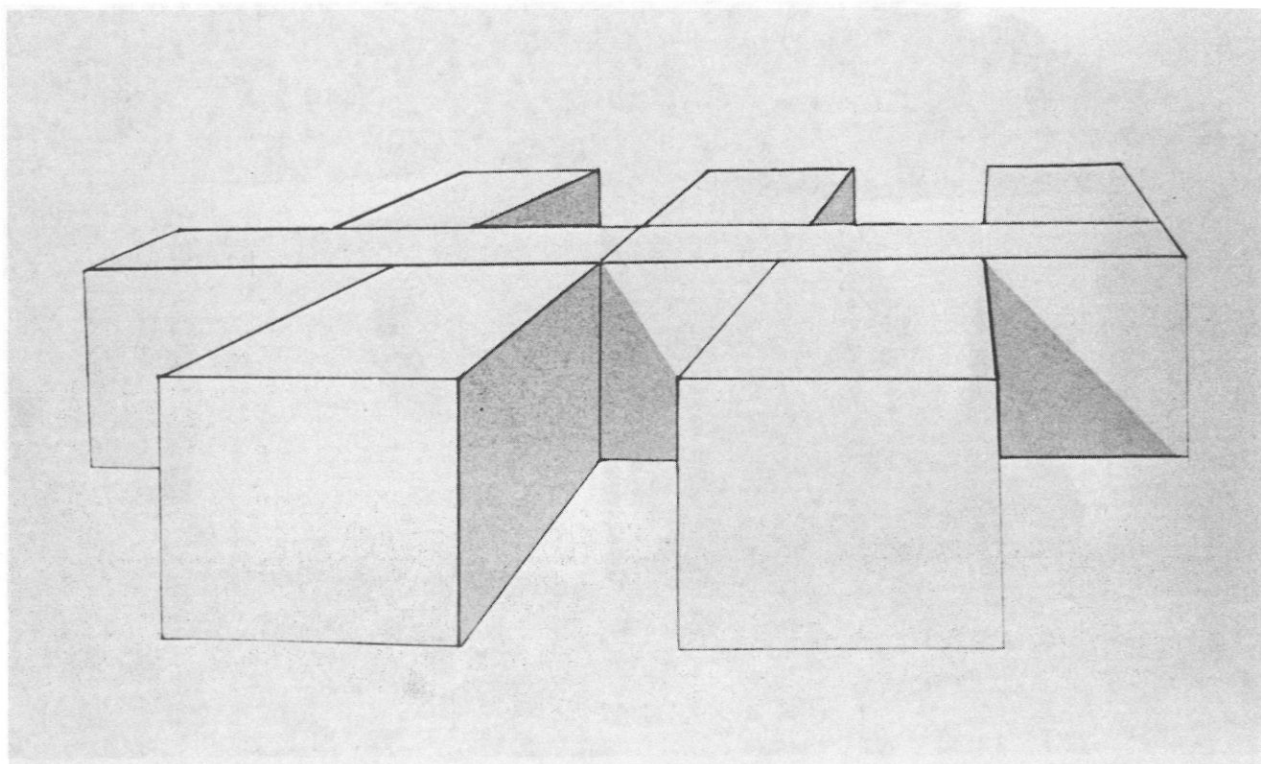


Short Airfield Tactical Support (SATS) van. The van can be towed overland on its detachable undercarriage. Lifting rings on upper corners permit crane or helicopter lift. The van also can be transported on the weather deck of a ship or in a C-130 aircraft.



The jacks are used to raise or lower the van onto or off the undercarriage for overland transport.

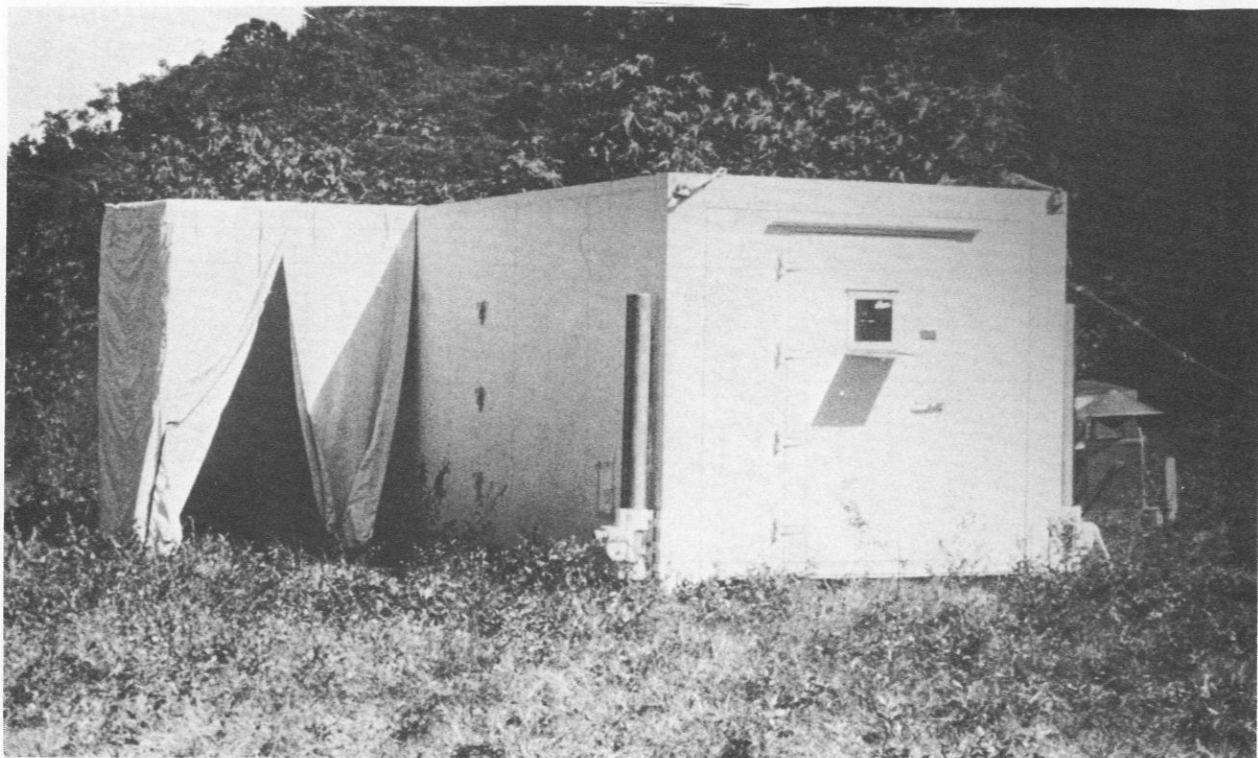




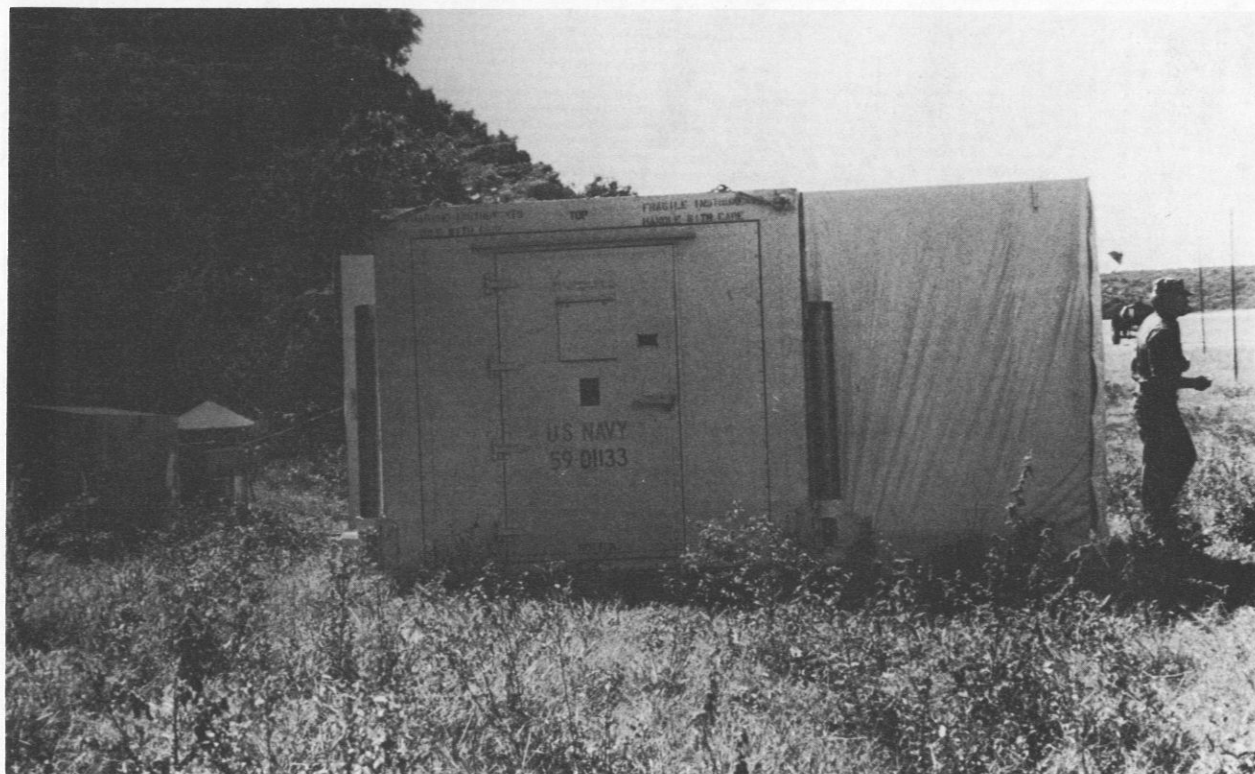
Vans can be joined together to form a dental facility of any desired size.



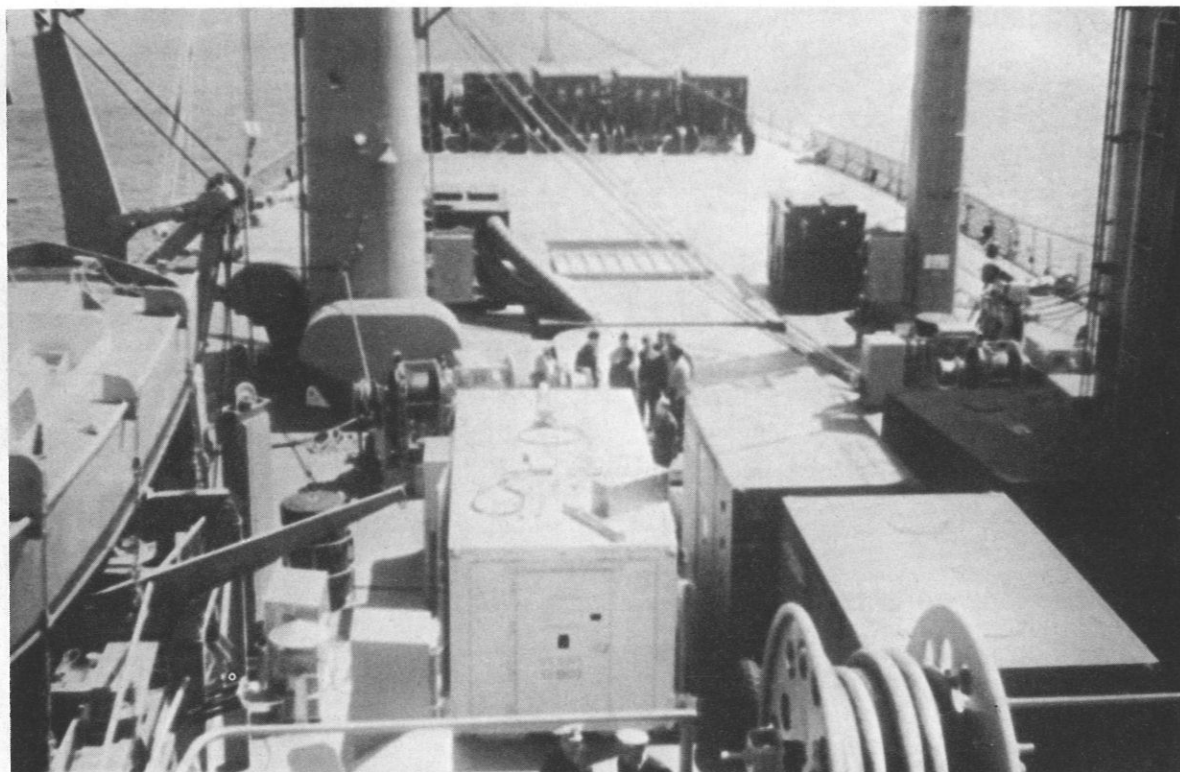
Mobile Dental Van undergoing helicopter-lift testing at the Marine Corps Air Station, New River, N. C.



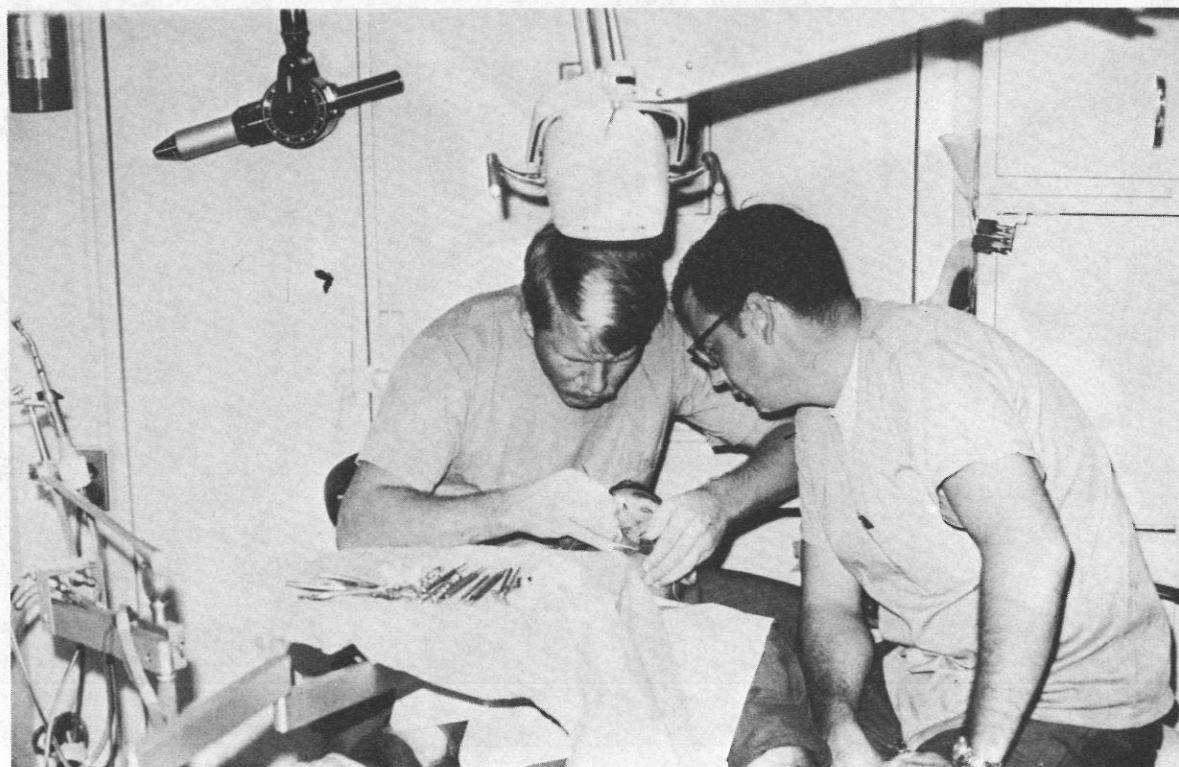
The Mobile Dental Facility was transported by Amphibious Ship to Vieques Island, Puerto Rico. Here it is shown in operation. Canvas on the left is an air lock. The "Rainhat" on the right is the air compressor.




Mobile Dental Van in operation on Vieques Island, Puerto Rico. Patient on right is departing following treatment. The van has been leveled with jacks. Square box on left is the central evacuation unit. "White" projection on the left is the heating/cooling unit. All items shown are transported internally in the van.



Mobile Dental Van on weather deck of USS SAGINAW (LST-1188).



Dental treatment being performed in the mobile dental van. 





LT J. H. Thomas USNR (right) is pictured performing emergency surgery on a wounded ARVN soldier during a rocket attack on the Marine combat base of Khe Sanh on 22 Jan 1968. HN2 Tom Hamilton USN (left) assisted. Medical teams worked 36 hours continuously in aiding the wounded in the Khe Sanh area. The operating room was a tent and stretchers served as operating tables.



# Khe Sanh Revisited

By GySgt Ed Evans, USMC

Illustrations by MAJ Jack Dyer, USMCR, Combat Artist

*Reprinted with the kind permission of the author and LEATHERNECK MAGAZINE, published by the LEATHERNECK ASSOCIATION, INC.; P.O. Box 1918, Washington, D.C. 20013. The story originally appeared in the August 1971 issue of LEATHERNECK.*

The novelist Thomas Wolfe once wrote that you can't go home again. Events and people, held static in the memory, change in reality. The same thing could be said for going back to old battlefields. When the Marines returned to Khe Sanh, in February 1971, to assist the Army's support of Lam Son 719, nothing was the same as before.

There were a few visible relics from the battle fought there by Marines in 1968, but they were all but lost in the hustle and bustle, and the reshaping of the area to accommodate vast quantities of men and equipment.

The dust and rain were the same. The Army's truck convoys found themselves choking and blinded by the thick dust one minute, and sliding completely off the glass-like, red mud roads when it rained. Every now and then, the Army drivers would also find a metal stake that had been part of a bunker before all the fortifications had been plowed under.

The stakes made themselves known as they worked their way out of the ground to puncture tires.

Of course, there were still the stunted, stubby remnants of the lush green forest that once surrounded Khe Sanh. They look like the setting for some Grade B horror movie. And in between the trees, alongside the road leading 18 miles to Vandegrift and on out to Dong Ha, were the gaping holes left in the earth by the Air Force's B-52 strikes.

Early in 1971, the Marines who arrived at Khe Sanh to assist the Army consisted of 17 men from the 1st Shore Party Battalion's Company "C"; 28 men from MASS-3's Air Support Radar Team, of MAG-18; and two men from the First Marine Division's Headquarters Battalion radio section. About five miles east of the old Khe Sanh airstrip, at what was the First ARVN Division's new helo pad, four Marines of the MAB-16 communications section kept in touch with MAG-16 in Da Nang. All day long, the workhorse CH-53 helicopters from HMH-463, and the deadly Cobras from HML-367 flew in and out of Kilo Pad, running missions in support of the Army and the First ARVN Division.

In 1968, just below the southeast corner of the Khe Sanh perimeter, stood a small cluster of trees where the enemy would sneak in from time to time

and snipe at the Marines. Whenever this happened, Whiskey Battery, 13th Marines, would train their guns on the stand of trees and wreak unholy havoc. When the battle of Khe Sanh ended, all that was left were bare, scorched tree trunks and limbs reaching grotesquely skyward. Charlie may have thought he owned the trees as a hiding place, but Whiskey Battery nearly blew them away.

Khe Sanh 1971 stretched far beyond those trees. The original perimeter had been enlarged approximately three-fold. The Marines of "C" Co., 1st Shore Party Bn., staged their equipment, ate and slept in an area about half a mile west of the old Whiskey Battery tree target.

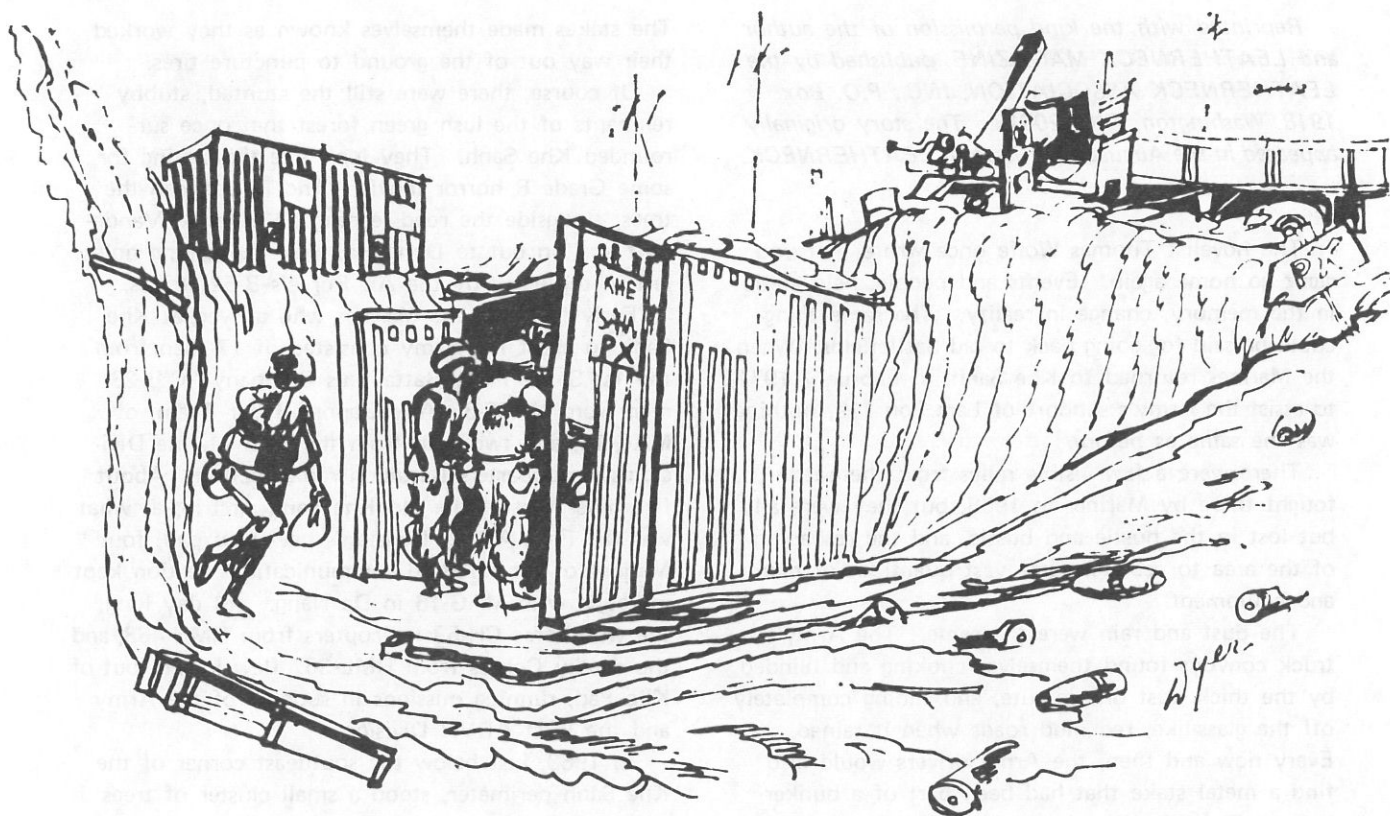
The former 1968 airstrip was now a parking area for Army helicopters. A new strip stretched parallel to the old one, but about two to three times the length. A helicopter parking area also lay across the place where the 26th Marines dug their lines, facing eastward, listening for rockets and peering into the early morning fog banks.

It was impossible to tell where Col David E. Lownds once had his COC bunker, or where Recon used to be, or the sick bay with the elephant skull perched over the doorway. The only reference points

left were a portion of the old runway, the beat-up stand of trees to the southeast, and the battle-scarred face of Hill 950 across the valley to the north. There was no way to tell where the C-130 went down on the runway, or the CH-53 helicopter that ripped itself apart beside the MP's bunker.

MAG-18's Air Support Radar Team (ASRT), in support of the Army's 1st Brigade of the Fifth Infantry Division, was given a portion of the new western perimeter alongside the headquarters of the 108th Artillery Group. The ASRT team set in at an unknown distance west of where the 1st Bn., Ninth Marines, had their headquarters among a grove of trees. The trees were long gone. The team's perimeter was now practically at the base of a range of mountains which obscured all but the tip of Hill 881 South. Across a small valley and to the northwest stood Hill 881 North. Even after three years of nature's healing, the two hilltops remained noticeably battered.

Three years ago at Khe Sanh, when a C-130 Hercules transport aircraft came out of the sky toward the runway, it was a signal for everyone to dive for a hole. Approaching aircraft meant a hail of mortars and rockets. My first day at Khe Sanh





1971, more than 40 C-130's landed and took off. Better than a hundred trucks in convoy rolled into Khe Sanh. Nothing happened. The only explosions were Army demolitions teams blowing old mines in place.

The first time I saw Khe Sanh was December 1967. Then it was like pictures I had seen of the French Alps. It was green and lush and lovely. The second time was February 1968. The CG of the Third Marine Division, Major General Rathvon McC. Tompkins, got off the helicopter before me, into what looked at first like a gray, disheveled nightmare. Enemy mortars were impacting. Standing on the rutted, muddy, debris-strewn road was David Douglas Duncan, photographing. Everyone wore helmets and flak jackets, and if they didn't have to be above ground, they weren't.

When the roaring CH-53 landed at Khe Sanh this last time, it set down just about where the 26th

Marines' lines used to be. Crushed shell casings and crumpled bunker material protruded here and there from where it had been bulldozed over. A Saint Christopher medal lay half-buried, one gold corner glinting in the sun. The day was hot. Few people wore shirts. The only activity consisted of helicopters landing and taking off, the loading and unloading of supplies. Red smoke would waft into the sky as a warning, and the demolitions men would blow another mine they had found. There was no enemy activity. There seemed to be no enemy, except the heavy dust and hot sun.

It was Khe Sanh, all right. But not *the* Khe Sanh. This Khe Sanh and *the* Khe Sanh were more than just three years and tactical differences apart. I stayed four days and left. It seemed profane somehow, like laughing in a cemetery. Thomas Wolfe was right. . . .

# Approach To FMF Assignment

*By LCDR Lawrence P. Metcalf, MSC, USN; Medical Instructor, Education Center, Marine Corps Development and Education Command; Quantico, Virginia 22134.*

Our Nation's military structure is based on the concept of forces which engage the enemy. Such action is viewed as the ultimate extension of unsuccessful diplomacy.

In terms of naval application this means putting Marines ashore across a hostile beach and supporting their efforts for whatever time it takes to do the job, employing the necessary resources which are available within our fleet assets. Control of the seas and air assures a favorable outcome for the units in contact.

Any reference to Marines ashore against a hostile enemy suggests the panoramic vision of an impersonal mass of humanity, machines, and equipment spread across the beach of a recently tranquil setting, or many landing craft trailing long streaks of silver wake over the distant horizon. Examining that scene with a more critical eye, the enlightened observer detects the individuals who are involved, each one of whom is engaged in a singular struggle to accomplish an assigned personal task.





## Defining the Need

*Victory* signifies the successful accomplishment of the mission by the massed force; the individual Marine rifleman's ultimate triumph is *survival*. His hazardous assignment marks him as a man particularly vulnerable to casualty. He is the man most likely to acquire a desperate need of your help. A unique patient, he may well present the supreme challenge in an entire medical career.

Navy Medical Department personnel have characteristically responded to the needs of Marine casualties for years. The skill, imagination, and courage with which medical services have been rendered in critical moments and hours of combat are familiar to all of us. More startling and curious by far is the realization that such a record of performance has been achieved, with rare exception, by Navy-oriented professionals who have no in-depth knowledge of the Marine Corps or of massed forces in combat. That we have been able to get away with this in the past offers little reassurance when contemplating inevitable future contingencies.

All officers of the Navy Medical Department who are subject to assignment with the Marine Corps would be well advised to exert some effort to acquire at least a fundamental knowledge of Marine Corps organization and operations. Medical officers and health care administrators understandably favor their hospital setting in preference to that of field medicine. Resentment and hostility are frequently expressed by Navy personnel who are untrained in Marine Corps matters and unhappily find themselves assigned to the Marines.

They itemize and savor a multitude of reasons to damn the system, damn the organization, and damn their plight in life. Taking care to confine their perspective and rationalize their alienated position, such unfortunates overlook the important point that the very basis for existence of Navy medicine is to provide support to the operating forces. Marine combat troops in the field are the *sine qua non* of operating forces.

## Education

From an educational point of view, Medical Department officers who are assigned to the Marine Corps may be placed in one of two broadly defined categories. One is composed of senior command and staff officers who are Marine-dedicated from a career point of view. The remainder of all of our Navy Medical Department officers who are subject to assignment with the Marines comprise the second category.

It is essential to develop a small core of Marine-oriented Navy medical personnel to serve as senior command and staff category officers. These individuals should be graduates of one of the two formal schools available to a limited number of Navy personnel. For optimum results, officers selected for attendance should be volunteers. It is assumed that graduates from these schools will become the leading medical figures in the Marine command structure. The two schools involved are the Marine Corps' Command and Staff College, and the Amphibious Warfare School, both of which are located at the Marine Corps Development and Education Command, Quantico, Va.

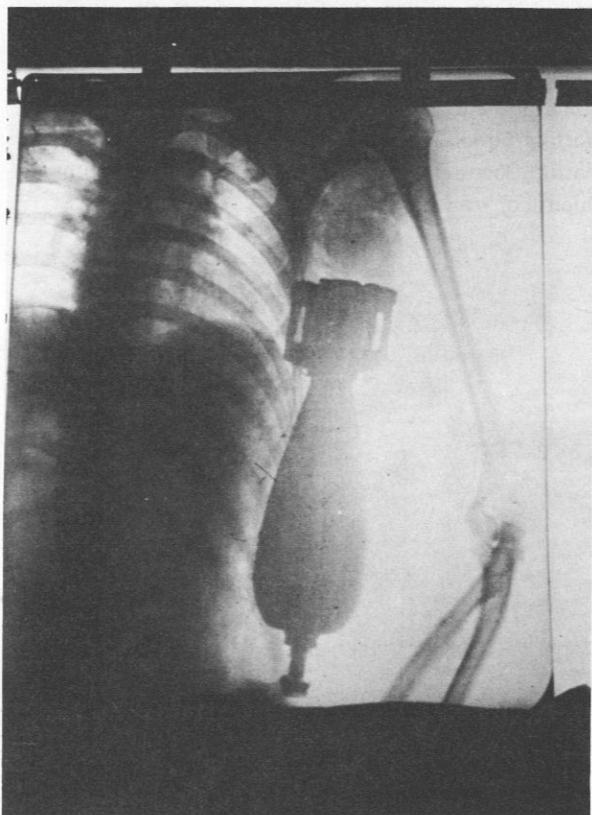


### *The Command and Staff College*

The Command and Staff College offers one class annually in the nine-month course for officers of the Marine Corps, Navy, Army, Air Force and foreign countries. The ranks of the officer students are LT COL (CDR) or MAJ (LCDR). There are three Medical Department commanders among the naval officers who are presently attending the Command and Staff College. The Medical Corps, Dental Corps, and Medical Service Corps are represented.

The curriculum of the Command and Staff College is structured around the employment of a Marine Amphibious Force (MAF). A MAF is generally made up of one Marine division, one air wing, and units from Force Troops (FMF). These commands are drawn together under the control of a headquarters for the entire MAF.

As stated in the college syllabus, the major areas of study are *Command*, *Landing Force Operations*, and *Strategy*. Within the *Command* area of study the student considers: Leadership, Professional Skills and Fundamentals, Staff Functioning, Management, and Electives. Within *Landing Force Operations* area of study the student encounters Amphibious Operations,



(Courtesy of CDR J. E. Howard, MSC, USN; AO Nav Hosp, Port Hueneme, Calif.)

Operations Ashore, and Special Subjects. Finally, *Strategy* is organized for purposes of study into consideration of: Counterinsurgency; National Policy; Organization, Functioning, and Decision Making Within DOD; Army, Navy, Air Force Concepts; Strategic Surveys; Military Strategy; and Domestic Forces and Factors Affecting the Military.

### *The Amphibious Warfare School*

The Amphibious Warfare School (AWS) was formerly known as the "Junior School." The contents of its curriculum, however, indicate that it is far from junior in scope. The School graduates two classes each year after six months of study.

The student body is similar to that of the Command and Staff College, except that the officer students' ranks are Major (LCDR) and USMC Captain (USN LT). There are generally two MSC students in attendance.

The prevailing level of command which is examined at AWS is the Marine Amphibious Brigade (MAB). A conventional MAB is structured with one regiment, one Marine aircraft group, and elements of Force Troops. As in MAF, a headquarters for the MAB is organized to command and control the several subordinate participating commands.

The syllabus of AWS outlines eight primary subcourses within the scope of instruction. The eight subcourses are: Organization, Weapons, and Equipment; Command and Staff; Tactics and Techniques; Amphibious Operations; Politico/Military Background; Counterinsurgency; Nuclear and Chemical Warfare; and Effective Communications.

### *Career Planning*

Division surgeons and their administrative officers, at least, should benefit from training in one or the other of the two schools. Ideally, commanding officers of medical battalions and their MSC executive officers should also have the advantage of this instruction. Beyond acquiring specific knowledge of "matters Marine" by attending the appropriate school, graduates make contact with Marine officers whom they will encounter throughout their Marine assignments. These contacts are as invaluable professionally as they are socially rewarding.

Dedication of suitable Medical Department officers to the Marine Corps should be encouraged and developed. There must be a career pattern incentive. Such officers, for example, should not be denied an opportunity for promotion to the ultimate rank of their Corps simply because they have not held a top staff position or command of a major Navy-managed medical facility.

The sequence and nature of professional assignments are equally significant. The first assignment following graduation from the Command Staff College or AWS should be within an FMF Marine Corps activity. This will reinforce the knowledge recently acquired and amortize the training investment. Periodic reassignment to Navy-managed medical activities throughout the military career will enable and stimulate the individual to remain current in his professional skills and knowledge.

#### Preparation For Assignment

Those officers subject to Marine Corps assignment who are not of the Marine Corps-dedicated category are encouraged to explore and utilize several available sources of information and education.

#### Correspondence Course

The Navy Correspondence course, *Combat and Field Medicine* NavPers 10706-B is particularly useful. This course includes five assignments that deal with the following major subjects:

- Management of Battle Casualties,
- Care of Neuropsychiatric Casualties in Combat Areas,
- Traumatic Shock,
- Medical Aspects of Warfare in Different Environments, and
- Prevention and Control of Certain Diseases.

The course is administered by the Naval Medical School, National Naval Medical Center, Bethesda, Md., 20014.





FIGURE 1. COMMAND AND STAFF COLLEGE EXTENSION COURSE (MCC&amp;SCEC)

Subcourse Number	Title	Estimated Hours Student Effort
<i>Area of Study 0 — General Subjects</i>		
9102*	Department of Defense	9
9103	Staff Study Techniques	3
9104	Staff Study Preparation	15
9105	Effective Writing	18
<i>Area of Study 1 — Command</i>		
9110*	Intelligence	6
9111*	Fire Support	9
9112*	Logistics	6
9113*	Personnel	6
9114*	Marine Aviation	12
9115*	Command and Staff Action	12
<i>Area of Study 2 — Landing Force Operations</i>		
9121	Amphibious Doctrine	3
9122	MAF in Amphibious Operations	18
9124	Offensive Operations	15
9125	Logistic and Personnel Support	12
9127	Defensive Operations	15
9128	Joint and Combined Operations	9
<i>Area of Study 3 — Strategy</i>		
9130	Counterinsurgency	12
9131	Counterinsurgency Operations	6

\*Subcourses may be completed by examination only (exemption examination).

### *Extension School*

Another valuable source of education which is generally unfamiliar to Navy personnel is the Marine Corps' Extension School. This school offers correspondence courses which directly relate to the Command and Staff College, and the Amphibious Warfare School.

The major subcourses offered through the Extension School are listed in Figures 1 and 2. It should be noted that the student may participate in selective subcourses, thus avoiding total involvement in the entire course which is primarily designed to satisfy Marine officer requirements. Conversely, the Medical

Department officer is not limited solely to those courses that are directly related to his future professional position. There is room here for individual planning and modification.

Acceptance for enrollment is generally consistent with the rank of the officer, i.e., CDR and LCDR for Command and Staff College subcourses, and LCDR and LT for subcourses of the Amphibious Warfare School. It is anticipated, however, that a Navy CAPT or a LT(jg) would be accepted for the school most nearly commensurate with his rank.

Enrollment in the subcourses offered by the Extension School is accomplished by submitting a letter



FIGURE 2. AMPHIBIOUS WARFARE SCHOOL EXTENSION COURSE (MCAWSEC)

Subcourse Number	Title	Estimated Hours Student Effort
8101	Inventory/Analysis	3
6201	Conference Techniques	3
<i>Phase I — General Subjects</i>		
8111*	Fleet Marine Force Organization	6
8112*	Marine Aviation	9
8113*	Fire Support	12
8114*	Staff Functioning	15
8115*	Intelligence	6
8116*	Logistics	12
8117*	Communications	3
8118*	Nuclear and Chemical Support	12
8119*	Tracked Vehicles	6
<i>Phase II — Tactics</i>		
8121	Tactical Fundamentals	9
8122	Combat in Built-Up Areas	3
8123	Cold Weather Operations	3
8124	Jungle Operations	3
8125	Riverine Operations	3
8126	Counterinsurgency	9
8127	Infantry Battalion Operations	18
8128	Infantry Regiment Operations	12
<i>Phase III — Amphibious Operations</i>		
8131	Amphibious Doctrine	9
8132	Amphibious Planning	21
8133	Amphibious Exercise	12


\*Subcourse may be completed by examination only (exemption examination).

requesting an Application For Enrollment form to the Director, Extension School, Education Center; Marine Corps Development and Education Command; Quantico, Va., 22134.

#### Conclusion

Finally, I would be pleased to assist officers with specific inquiries regarding Medical Department matters as they relate to the Marine Corps. The educational resources of the entire Education Center are, therefore, at your disposal. Address such inquiries to the Medical Instructor, Logistics Branch, Education Center; Marine Corps Development and Education Command;

Quantico, Va., 22134. Please be as specific as possible in your inquiry.

The quality of your performance in any future assignment to the Marine Corps is vitally important. If optimum mutual benefit from your association with the Marine Corps is to be realized, there is an obvious need to extend beyond the ordinary area of professional expertise, to develop an awareness of, and appreciation for, Marine activities. Knowledge is the key to high-quality performance and professional satisfaction in serving with the Marine Corps. The experience can be rewarding and enlightening if intelligently approached. 

# **PREVENTIVE DENTISTRY**

## **For Marine Recruits**

By CDR Raymond C. Terhune, DC, USN;  
Preventive Dentistry Branch, Dental Division,  
Bureau of Medicine and Surgery, Washington, D. C.

The mission of the recruit preventive dentistry program at the Marine Corps Recruit Depot, San Diego, is twofold. First, a caries-inhibiting agent (stannous fluoride) is applied to the recruits' teeth. Second, and more important, each recruit is taught how to prevent or control his own dental disease by daily plaque removal.

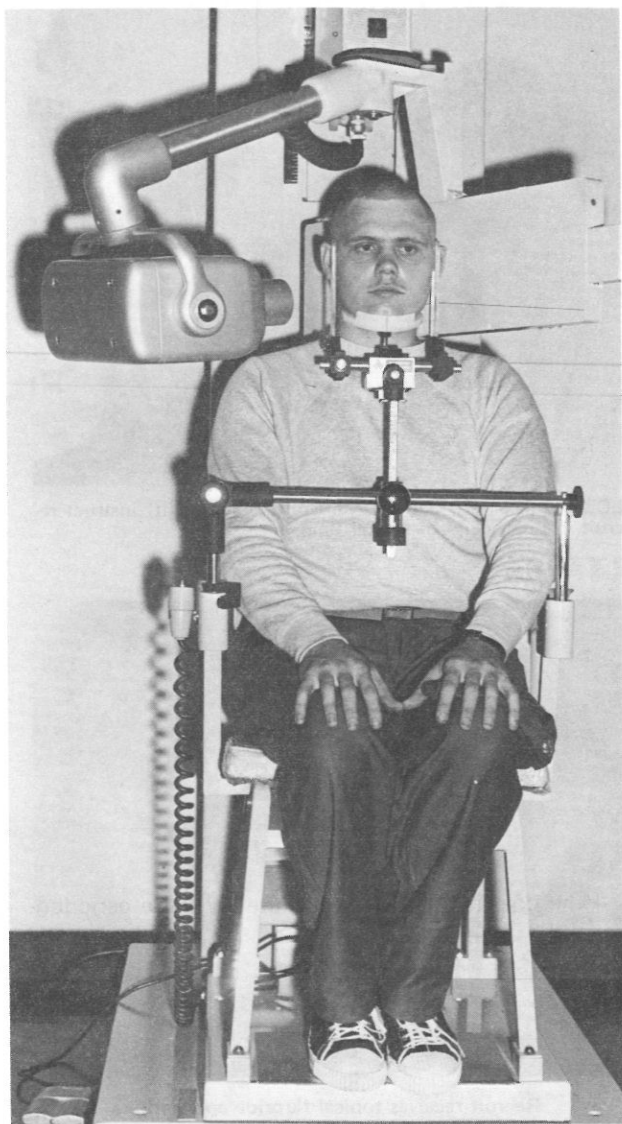
On his first day in the Marine Corps, the recruit reports to the dental clinic to obtain an X-ray examination and to learn about dental disease. He attends a lecture and watches a movie that informs him about dental disease, and how he can prevent or control it himself with a toothbrush and dental floss.

Three days later, the marine returns to the dental clinic where he is given a toothbrush, a roll of dental floss, a mouth mirror, and red dye tablet. He chews the dye tablet to stain the bacterial plaque adherent to his teeth and uses the mirror to locate the plaque. A dental officer then conducts a thorough examination and views the X-rays which were taken previously. In addition to noting all dental diseases, defects, and restorations, the dentist also records the amount of bacterial plaque present in the mouth and reemphasizes the role of plaque in the dental disease process. If dental treatment is required the recruit is given an appointment to return.

If he does not present moderate or severe periodontal disease, the recruit receives a fluoride treatment immediately following the examination. Treatment consists of brushing the teeth with a stannous fluoride paste, and is followed by topical application of stannous fluoride. If periodontal disease is present, treatment for that condition is provided first. Such treatment consists of thoroughly cleaning the teeth and receiving intensive instruction in the control of dental plaque (the cause of the disease). After a few days, when the periodontal problem has been satisfactorily resolved, the recruit receives his stannous fluoride treatment.

Each time a recruit has a dental appointment, his teeth are stained to reveal any bacterial plaque that may be present. The amount observed is compared to that recorded on previous appointment, so that progress can be evaluated. Flossing and brushing techniques are also reviewed and necessary corrections made. The importance of plaque control is again reemphasized.

In order to ensure that plaque control is practiced regularly, drill instructors are taught about its importance in relation to their recruits' dental health. Instructors encourage the recruit to keep his mouth, as well as the rest of his body healthy. The dental officer on duty in the evening also visits the recruit barracks



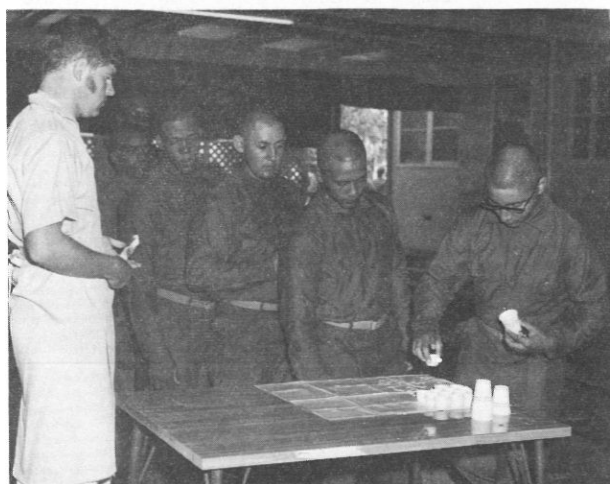
Dental X-rays are obtained.



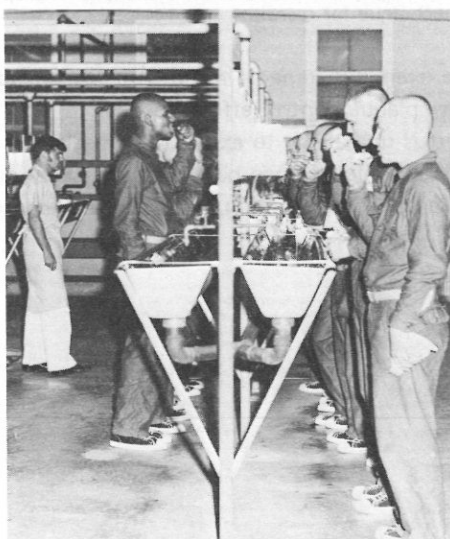
DT3 C. Harris USN (right) issues toothbrush, floss and oral mirror to recruit.



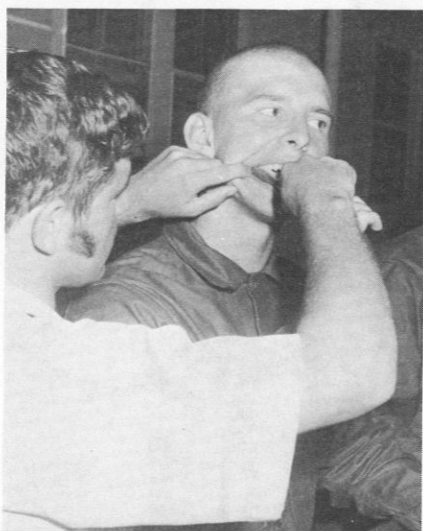
DN K. Fetterhof USN (left) provides disclosing tablet.



DN T. Fulton USN (left) issues stannous fluoride paste to recruits.



Recruits brush teeth with stannous fluoride paste.



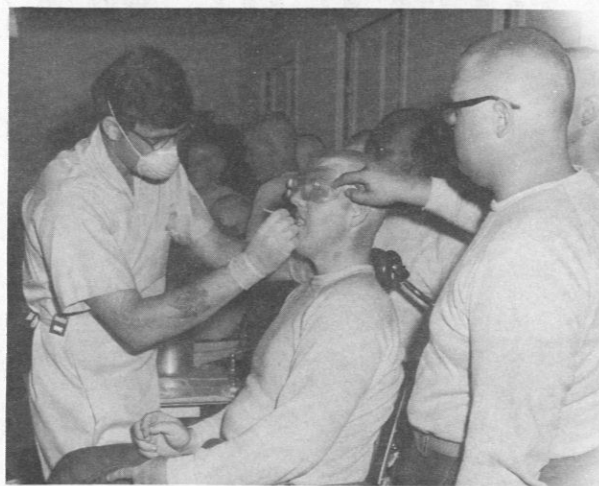
DN Fulton (left) instructs recruit in brushing with stannous fluoride paste.



LCDR Engel (left) and DT2 J. Braithwaite (right) instruct recruit in proper use of dental floss.



LCDR L. D. Engel, DC, USNR (left) demonstrates proper brushing technique for recruit.



Recruit receives topical fluoride application.

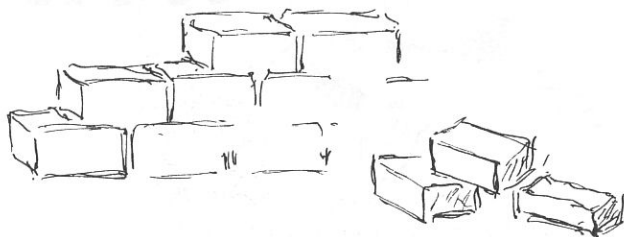
where he examines some of the recruits to evaluate their daily plaque control efforts.

While it is unrealistic to expect that neglectful dental habits of a lifetime can be changed entirely during the course of recruit training, all of these measures

will increase the recruits' awareness of dental disease, the cause, and how to prevent it. Since plaque control will be reemphasized during the entire course of the military career, effective dental health habits may eventually be established. ☸



# a **MUST**



# for the **MARINE CORPS**

*By LCDR Elgin R. Christian, MSC, USN; The Medical Logistics Assistant,  
Headquarters, U.S. Marine Corps, Washington, D.C. 20380.*

For nearly two centuries the Marine Corps has cared for its casualties in tents. In the days when field surgery was limited to closing wounds or amputations, the tents were accepted, primarily because there was nothing else. Today the degree of surgical skill has increased to the level where a simple rain protector is no longer acceptable as an operating room. Modern technology is now available to provide a field medical facility capable of supporting a full range of medical services required by the seriously wounded. The Army joined with private industry to take advantage of the new technology and the result of that effort is called MUST! (Medical Unit, Self-contained, Transportable)

What is the MUST? Specifically, the MUST is a mission-oriented medical treatment system designed to accommodate relatively rapid establishment and disestablishment, and to facilitate immediate medical response to any tactical, geographical or environmental change. It consists of a grouping of building block-type modules which may be arranged to create a medical facility of a size and configuration appropriate to the size of the force supported, or appropriate to a particular mission.

Briefly, the MUST components consist of an expandable shelter, which is its own shipping container in the closed mode, but expands to create a building with

approximately 12 x 18' floor space. It is normally used for operating room, central surgical supply, pharmacy, laboratory, X-ray or dental surgery units. These shelters contain the latest and most modern medical equipment available.

Another component is the inflatable shelter which resembles the familiar Quonset hut, but consists of sections of a series of individual air tubes connected together by a manifold valve system, to form a building of almost any desired length, and 20 feet wide. This shelter is normally employed for patient wards and receiving areas. The inflatable shelter is packed and shipped in the service ward container, which also expands to provide a building with approximately 12 x 10' floor space. The ward container is normally used for storage, heads, showers, etc. Utilities and environmental control for the hospital are provided by the utility element, a turbine engine-driven generator, water heater and water pump, air compressor, and air conditioner and heater.

The MUST underwent its baptism of fire in Vietnam from 1967 to 1969 when the Navy purchased two small MUST equipped hospitals and presented them to the Marine Corps. The components of these hospitals were among some of the first production models and naturally introduced many problems. The situation

(Continued on p. 31)

# MARINE CORPS MEDICINE



## WHAT NEXT?

**By CAPT J. H. Stover, Jr., MC, USN;  
Director, Fleet and Marine Corps Medical Support Division,  
Bureau of Medicine and Surgery, Washington, D. C.**

This issue of U.S. NAVY MEDICINE presents a series of articles which reflect the authors' experiences in Vietnam or in other recent USMC assignments. As such they make interesting and worthwhile reading. But what of the future — will we be treading this path again? Will the past prove to be prologue? What will the Corps itself look like, and what will be the shape and size of the medical support "package"?

The July 1971 issue of the quasi-official "Marine Corps Gazette" was devoted almost entirely to a provocative article by BRIG GEN F. P. Henderson, USMC, (Ret.), concerning the future of the FMF. Marines at all levels have been urged to read and comment on the article and the response has been lively. General Henderson maintains that the close-combat mission ("every Marine a rifleman") for Marine infantry is dead and should be interred, with honor, among other hallowed memories of the past. He believes that the FMF could — and should be — reconfigured during the next decade to become a "search and attack" force. His concept implies an extension of the Vietnam "Sting Ray" teams; he proposes small groups of men equipped with sophisticated sensors to detect and accurately locate the enemy, to "illuminate" or "paint" them electronically and to call fires of terminally-guided munitions to attack and destroy them. Close combat would be avoided rather than sought. Battalions would have organic aircraft for increased-range sensing, for

attack, and perhaps also for platoon or team movement. A battalion would have tactical responsibility for an area about 20 km square and tactical air control up to 5,000 feet over this area.

Medically, the implications of such a Marine Corps would place more responsibility on the platoon corpsmen and less on the battalion medical section. Evacuation of the wounded might not be enhanced even though the battalion possessed organic aircraft. As with our reconnaissance and "Sting Ray" teams in Vietnam, helicopter extraction of a patient might give away unit location and result in further injuries from enemy-called artillery or missile fire.

Nearer at hand are the "Sea Basing" and "Sea-Borne Mobile Logistics" concepts. These represent efforts by the Marine Corps to revert to the role originally contemplated for the FMF — a light shock force designed to seize a lodgment on enemy real estate for prompt subsequent exploitation by regular army forces. Individual actions hopefully would be short-term, up to 90 days. The Marines would like to drastically limit the logistic build-up ashore — and perhaps even have the force headquarters afloat (Sea Basing). Under this concept the amphibious task force would land the troops (by air or surface) and then remain offshore (as at Okinawa). Continuous resupply of landed units would be from the fleet rather than from logistics dumps ashore. Helicopters would replace

supply trucks.

Because of the demonstrated capability of small surface-to-surface missiles of the Styx class, the amphibious task force would linger well over the horizon, perhaps 50 miles from shore. The machinery for practice of this concept is under active development and test in amphibious exercises at all levels. It has major medical implications. It implies that *all* definitive medical care will be furnished by the afloat elements. Medical battalion elements would remain afloat. (The concept does contain the stipulation that a capability must be maintained to establish shore-based logistic support if necessary). During amphibious operations of the past, the personnel of the medical battalion or its subelements have augmented the shipboard surgeons *during the assault phase* — and then set up field surgical facilities ashore. Under the new concept they would remain afloat.

BUMED is actively participating in the development and test of this new concept. Surgical teams have been enlarged and more extensive participation in fleet exercises has been programmed. Teams are being asked to critically examine the ship types to which they are assigned, and to pinpoint practical difficulties and constraints on their capability to process fresh combat casualties. Surgical support teams (for pre- and postoperative care) have been formed and several were deployed in a major west coast amphibious exercise conducted in August 1971. An equipment allowance list for a neurosurgical team has been developed and it is likely that a prototype team will be formed and equipped by 1 July 1972.

With the prospect of total definitive care for the landing force resting with the fleet elements, BUMED has successfully advocated a major increase in the medical facilities in new-construction amphibious shipping. The LHA class ships now under procurement will have an on board surgical capability exceeding that of our hospital ships.

BUMED has advocated design studies for new ships to replace our few remaining WW II-vintage hospital ships. The design for initial estimating purposes has ten (vice the present three) operating rooms, a 1000-bed capacity, and four medium helicopters permanently attached to the ship for patient movement.

That portion of the concept that implies that FMF medical battalion personnel and equipment will normally remain afloat but *must be prepared* to land and set up ashore, if required, leads to some difficulty. One possibility is to station them aboard major units, such as LPH's (helicopter carriers), utilizing the ships equipment and supplies, and leaving their own gear packed up for landing. Navy surgical (and surgical

support team) personnel augmenting the same ship would utilize the equipment and supplies in their own accompanying surgical block. Details of this scheme are being tested by exercise.

Another possibility would be to have the FMF personnel break out their gear and convert one of the amphibious ships into a "field hospital." BUMED has advocated for several years that the Marine Corps should adopt a mobile, modular system of field medical units. It now appears almost certain that the Corps will formally adopt and procure the U.S. Army-developed "MUST" (Medical Unit, Self Contained, Transportable) system. Documentation is in preparation and BUMED has convened a series of professional review boards to modify the Army equipment lists for Marine Corps use. The feasibility of erecting a company (60-bed) sized unit on one of the new LST's has been established by dockside test. Contract development of special restraining devices and equipment modification for functional use of the system at sea has been funded and a contract let. A feasibility study for employment of the system on an LSD (effectively converting the LSD to an auxiliary hospital ship) has been funded and let.

Arrangements have been made by the Marine Corps to completely rebuild and rehabilitate the two company-sized MUST units which were deployed in Vietnam. This will require 12-18 months before the equipment can be refurbished and reassigned to Marine Divisions. Procurement of new MUST equipment — if approved — will be phased over a five-year period with first deliveries probably in 1973 or 74. BUMED has advocated that the Corps procure, as an interim measure, air-conditioned shelters for operating rooms and intensive care units. The recommendation has been favorably received but actual shelters have not yet been selected nor provided.

The command and control aspects of such a medical support system also present difficulties. These have been under study for almost two years. Final recommendations from the study group are anticipated in December 1971. A similar and closely related effort is under study and test by the Navy-Marine Amphibious Force Study Group (NAMAf). One of the most difficult problems is effective and rapid medevac request techniques and control of patient distribution. In some tests this has been effected via the new logistical control system; current thinking trends favor more direct access by the requestor to the Helicopter Direction Center, afloat or ashore.

With the amphibious task force perhaps 50 miles off the beach, much higher-speed landing craft will be required. These are under development with initial



sea trials scheduled in a few months. Speeds up to 100 knots are desired. BUMED has funded studies on the motion problems to be encountered in such craft and a determination of their suitability for patient evacuation. If they prove unacceptably rough-riding, damping devices will be developed for litter mount.

Another aspect of the "new" Marine Corps of medical interest is the fact that the Amphibious Ready Group — Special Landing Force concept (ARG—SLF) seems here to stay and the number of these groups may well increase. They consist of a small amphibious task force, with a battalion landing team and supporting air elements which remain afloat, deployed in potential trouble areas. On board habitability is being improved, and air conditioning extended. In order to induce and maintain acclimatization for possible landings in tropical areas, an acclimatization chamber will be provided in the new helicopter assault ships (LHA's). BUMED is actively pursuing studies of techniques and schedules for achieving acclimatization in these chambers. It is already obvious that close medical supervision will be required since considerable physiological stress must be imposed to effect adaptation of the heat regulatory mechanisms.

Another change in medical practice resulting from Vietnam experience is the care of the dead. This was so effectively accomplished through the Army mortuary facilities at DaNang and TanSonNhut that USMC planners feel the U.S. public would not accept a return to the system of interment in combat zone cemeteries with post-hostility return to the U.S. Current thinking is to return all remains to the amphibious task force for temporary embalming and air movement to the U.S. This would be a medical department responsibility.

Perhaps the most significant factor affecting the future shape of the FMF medical package is the Medical Draft Law. If the Nation decides to operate with a completely volunteer military medical department (commencing perhaps in 1973), there will undoubtedly be an initial sharp drop in strength. Maximum professional utilization of the remaining manpower will

be required. At present, FMF units in garrison operate with reduced medical manpower and few or no specialists. The latter are augmented from Naval Hospitals, as required. Four of the existing Navy surgical teams are tasked to augment FMF units as a complete team. Similar arrangements might be necessary even for the general medical officers under an all-volunteer system. It might prove advantageous — or necessary — for the Naval hospitals charged with supplying FMF augmentees to also assume responsibility for maintaining their equipment. This would be analogous to the present system for maintaining surgical blocks for shipboard deployment. Such an arrangement, under which doctors would be supplied to the FMF only in the event of combat deployment, would increase the need for medical department personnel to participate in exercises in order to maintain a minimum acquaintance with the practical aspects of duty with the FMF. It might require that key potential medical battalion personnel would have to be designated by name in order to maintain a viable peacetime organization.

If an emergency requiring Fleet Marine Force participation occurs within the next few months the past will indeed be prologue — with the exception that the medical battalion will possess more adequate internal and external communications assets. As lead time increases, the glass becomes more obscure, but the main outlines are shaping up. Tentage will be replaced by air-conditioned mobile structures. Patient movement will be principally by helicopter. Increasing reliance will be placed on support by the sea echelon; it may become the definitive base of operations. Amphibious ships will be more elaborately equipped to provide medical care. Medical corps personnel may disappear from the Fleet Marine Force in peacetime and only be attached in the event of deployment.

Duty with the Marines — America's finest — will continue to exercise a physician's professional acumen, wit, patience, and skill at interpersonal relationships. It is certain to test his ingenuity and may occasionally call on his reserves of raw courage. ☸

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#### BONUS PAYMENTS FOR VIETNAM VETS

WASHINGTON, D.C. (NAVNEWS). . . Nine states now authorize the payment of a bonus to Vietnam-era veterans. They are: Connecticut, Delaware, Illinois, Louisiana, Massachusetts, North Dakota, Pennsylvania, South Dakota, and Vermont. ☸





## FROM THE DETAILER'S DESK

### *Medical Officers*

As the time for making FY73 assignments is fast approaching, all medical officers anticipating reassignment should be aware of the following items:

(1) Normal CONUS tours of duty are four years for LCDRs through CAPTs. This of course does not preclude either longer or shorter tours for specific reasons. Presently, no automatic consideration is given for transfer after four years unless requested by the officer or his command. Transfer prior to four years is also not considered without a specific request or requirement to fill service needs. It is obvious, therefore, that communication with their assignment officer in BUMED is of major importance to career officers desiring a change of duty. This communication may be accomplished through an informal letter, a phone call, or specific reference on the Officer Preference and Personal Information Card.

(2) Officer Preference and Personal Information Cards are filled out annually by all Navy officers in December. Medical officer cards are sent directly to BUMED. As assignments are being considered in late November and early December, the receipt of preference cards *after* mid-December is not helpful. All medical officers are encouraged to get their cards to BUMED by 1 December. The exceptions here are Navy *residents* and *interns*. As all graduate training hospitals will be visited by a BUMED assignment team, the filing of Officer Preference Cards is not of significance for residents or interns who will complete training in CY72. Cards from reservists anticipating release from active duty in CY72 are also of no significance.

(3) The Officer Preference and Personal Information Card, as indicated, should be carefully filled out.

Please be sure to mention your *specialty* and whether or not you desire reassignment. If presently engaged in residency training or internship, always indicate estimated date of completion. While this information may duplicate that in your BUMED jacket, it is helpful to the detailer as he goes through these cards. Please carefully double-check your preference card. Fill out all of the blocks that pertain to you and indicate what your desires are. This card is important!

### *General Information:*

Partially-trained physicians will, in general, be assigned as general duty officers whose specific assignment in a hospital is at the discretion of the commanding officer. Most general duty officers may anticipate a rotation, for a time, to the specialty of their choice if staffing permits.

The summer hiatus with critical shortages in medical manpower makes early release of medical officers unfeasible. In addition, present BUPERS instructions prohibit early release of medical officers except for unusual hardship or certain specific reasons. Therefore, those anticipating release from active duty upon completion of their obligated service should not contract for civilian residencies, partnerships etc. prior to their established RAD date. That date occurs two years after reporting on active duty.

Permanent change-of-station funds continue to be severely limited. In general, medical officers will be transferred to their ship's homeport following a sea duty tour. Cross-country transfers are practically precluded by the current budgetary limitations. However, a "no-cost" move, that is, one in which the individual agrees to assume the cost, may be requested. In most circumstances these will be favorably considered.

### Assignments:

Preventive Medicine Unit No. 6 at Pearl Harbor, and PMU-7 at Naples, will each have need for a LT or LCDR next summer. These medical officers should have an interest, or formal training, in preventive medicine. An ability to tactfully deal with senior officers and commands is a prerequisite. Officers interested should have had at least one year of active duty and be eligible for reassignment. Both of these assignments are for three years, if accompanied, or two years if unaccompanied by dependents.

Overseas assignments which will be available in the summer of 1972 have been indicated in the following table. These assignments will be firmed in February or March of 1972. If interested, and *available* for reassignment, you may phone the assignment section of BUMED – Autovon No. 294-4121, or 4288, or 4307, for further information; or write the Bureau of Medicine and Surgery, Navy Department, Washington, D.C. 20390 – Attention: Code 317.

Overseas Assignments

	Guam	Guantanamo Bay	Naples*	Roosevelt Roads*	Subic	Taipei	Yokosuka*
Anesthesiology	X			X		X	X
Dermatology	X						X
Medicine	X	X	X	X	X		X
Ob/Gyn	X	X	X		X	X	
Ophthalmology		X	X				
Orthopedics					X	X	X
ENT			X				X
Pathology	X			X	X		X
Pediatrics	X	X	X	X		X	X
Radiology	X				X	X	X
Surgery	X	X		X	X	X	X
GMO		X		X	X	X	X

\*Three year tours — all others are 2 years when accompanied by dependents. NOTE: No openings at Rota until 1973. 🇵🇷

### STAFF POSITIONS FOR MOs

In keeping with an announcement recently published in this journal concerning staff position descriptions, the following information is offered.

There is always a need for senior staff personnel with the Marine Corps. A description of three of these positions is presented herein. It is not to be inferred that any or all of these positions will be available this summer, for such information is not known at this time. The only purpose of these announcements is to make known the types of positions which do become available, and to arouse interest among senior medical officers qualified to fill the positions.

*Force Surgeon, Headquarters, Fleet Marine Force Atlantic*

1. *Staff Relationship:* The Force Surgeon is a

Special Staff Officer under the cognizance of the Assistant Chief of Staff, G-4.

2. *Mission:* To advise the Commanding General in all matters pertaining to medical support for FMFLant Units, and the general state of health of personnel attached to subordinate FMFLant commands.

3. *Functions:* The Force Surgeon's responsibilities include, but are not limited to the following functions:

a. Organization and operation of the office of the Force Surgeon.

b. The formulation of medical plans to support the various contingency plans required by this Headquarters or higher authority.

c. Conducting Technical Assistance Visits and

Formal Inspections of FMFLant subordinate commands.

d. Periodic review of organizational structures, personnel and material allowances to determine capabilities/limitations for providing medical support to the FMF.

e. Represent Headquarters, FMFLant at Marine Corps and BUMED sponsored medical planning conferences and work shops as directed by higher authority.

f. Promulgation of Force Orders and Bulletins relative to medical matters, and review of existing directives to insure current applicability.

*Division Surgeon, 2nd Marine Division, FMF; Camp Lejeune, N.C.*

The Division Surgeon is a Special Staff Officer to the Commanding General under the cognizance of the Assistant Chief of Staff for logistics, G-4. The duties and responsibilities include: Advise the command on all medical matters; initiate and supervise sanitation and preventive medicine measures and care, treatment, and evacuation of the sick and wounded; participate in command contingency planning; conduct command technical medical inspections; supervise Navy personnel administration over all Navy personnel attached to the Division (98 officers and 666 enlisted); and supervise assignment and distribution of all Medical, Medical Service, and Hospital Corps personnel attached to the DI Division (35 Medical Corps, 9 Medical Service Corps, and 624 Hospital Corps).

*Division Surgeon, 3rd Marine Division (-) (Rein) FMF; FPO San Francisco 96602*

The Division Surgeon is a Special Staff Officer under the staff cognizance of the Assistant Chief of Staff, G-4. His responsibilities include the following:

a. Prepares Division medical estimates, plans, and orders based on instructions from higher authority.

b. Makes recommendations to the Commanding General concerning the employment and training of all personnel, designed to promote the medical welfare of the command.


c. Assigns and provides for the replacement of medical personnel in coordination with the Assistant Chief of Staff, G-1.

d. Supervises the activities of the Division Preventive Medicine Section and the care, treatment, and evacuation of the sick and wounded.

e. Ensures that applicable records are kept and necessary reports are submitted when required.

f. Monitors the approved research and development activities conducted by Division units.

g. Supervises the overall medical mission which is to maintain the combat effectiveness of the command. This is accomplished through technical supervision of

measures designed to safeguard the health of the command, early effective care of the sick and injured, and prompt and orderly evacuation of casualties from forward areas. 

## NEW MASTER MEDICAL RECORD

By Change No. 69 to the Manual of the Medical Department, U.S. Navy, BUMED instituted the Master Medical Record Concept. In essence, the new procedure provides that only one permanent health record will be maintained for each member of the naval service while he is on active duty. This is a change from BUMED's previous policy of maintaining both a local record in the field and a BUMED medical record. While BUMED will no longer maintain a departmental medical record on active duty personnel, the health records of members in an inactive reserve status or serving on active duty for less than 30 days will continue to be maintained in BUMED.

In brief, the new procedure requires that upon separation of a member of the naval service from active duty, his complete health record, including dental and outpatient records, will be forwarded to BUMED (Code 334) for review (see ManMed 16-9 through 16-17). If his military affiliation is completely terminated or he is permanently retired, his record will then be forwarded by BUMED to the National Personnel Records Center (NPRC), St. Louis, Mo., according to an established records retirement schedule. On the other hand, if a member is placed on the Temporary Disability Retired List, if he is transferred to the Fleet Reserve, or if he retains a reserve obligation, the health record received from the field will be retained in BUMED until his military obligation or status is terminated, at which time the record will be retired to NPRC, St. Louis.

In order to safeguard both the government's and the service member's interest, the original report of the entrance physical (SF 88), Report of Medical Examination, and (SF 93) Report of Medical History for each individual entering naval service will be filed with other entrance documents in the master personnel jacket located in BuPers or Hdqtrs, MarCorps.

Copies of the entrance SF 88 and SF 93 will be used to open the member's health record in the field. All medical and dental documents originated while a member is on active duty will be filed in the health record, and only when the member is separated from active duty, will his complete health record be forwarded to BUMED (Code 334). An exception to this latter requirement will occur in the case of those reserve personnel who, upon release from active duty,



will return directly to a drilling reserve unit; a portion of their health record will be forwarded to the respective reserve unit (see ManMed 16-14).

For the custodian of the health record, this change means that the documents will not be purged from the health record upon reenlistment or annual/triennial physical examination as was the case in the past. *All forms must be retained in the health record until a service member's term of active duty is completed.* This does not, however, eliminate the requirement for sending physical examination reports to the various BUMED specialty codes for review (such as aviation, diving, and submarine physicals, etc.) in accordance with current BUMED directives.

BUMED hopes to realize the following benefits by implementing the master medical record concept:

1. The member's complete medical history and records will be readily available at all times to the local medical officer or personnel responsible for providing care and treatment.

2. Fragmentation of the health record and the attending confusion experienced by field personnel when making appropriate distribution of health record contents will be eliminated.

3. There will be a significant reduction in loose paper documents referred to BUMED for file in departmental records.

4. The Navy's medical records procedures will now be in alignment with those of its sister services.

Complete cooperation of the responsible persons involved is mandatory to make the new procedure effective. From the commanding officer to the medical records officer or petty officer, earnest effort should be made to ensure the correct and immediate implementation of this concept as stipulated in Change No. 69 to the Manual of the Medical Department.—Code 33, BUMED. ☛

## LEPROSY

The Public Health Service, U.S. Department of Health, Education and Welfare, Atlanta, Ga., issued the "Foreign Quarantine Program Circular No. 164 — SUPPLEMENT 1" on 24 August 1971 to revise Chapter 7, paragraphs 49-51, "Leprosy" of the *USPHS Manual for Medical Examination of Aliens*, as follows:

"49. Add the following statement: Individuals with lepromatous or dimorphous leprosy who have received adequate and continuous antimicrobial therapy (at least 50 milligrams/day of dapsone 4, 4' -diaminodiphenylsulfone or its equivalent) under medical supervision for at least 6 months and who have shown satisfactory clinical response to treatment will not be considered as "leprosy, infectious."

"50. Substitute the following for the first sentence: Individuals with indeterminate or tuberculoid leprosy or individuals with lepromatous or dimorphous leprosy who have received adequate and continuous treatment as described in paragraph 49 are not considered under the definition *leprosy, infectious*.

"51. Substitute the following for the present 51 a.: The medical examiner shall issue a Class A notification or certificate for leprosy, infectious, and a Class B notification or certificate for leprosy, not infectious (indeterminate, tuberculoid or lepromatous/dimorphous, adequately treated)."

For those who need to know, and if the USPHS Manual for Medical Examination of Aliens, 1962, plus changes and supplement are not available, a request may be submitted to the local Public Health Service Office, or to the Center for Disease Control, Atlanta, Ga. 30333, to procure a copy.—Code 72, BUMED. ☛

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## DRUG HOTLINE SET UP IN VIETNAM

NAVFORV (NAVNEWS). . .The Navy's Drug Education Team here has established a hotline to answer questions concerning drugs and rehabilitation programs. Callers will remain anonymous and will receive an immediate answer or be asked to call again if an answer must be researched. Drug education specialists will be manning this phone around the clock.

Additionally, there's a drug education specialist on duty in the Naval Forces Vietnam (NAVFORV) Drug Education Center from 6 a.m. to midnight daily to "rap" with anyone about drugs and rehabilitation.

All the drug education specialists are also exemption representatives for the Navy's drug exemption and rehabilitation program. They are in no way connected with any investigative or law enforcement agency. ☛



## OFFICIAL INSTRUCTIONS AND DIRECTIVES

### FM SECNAV TO ALNAV (53)

(summarized)

Calls attention to the opportunity for interest-free loans available to dependent high school graduates of Navy and Marine Corps officers and men for attendance at college or vocational school.

The Navy Relief Society is prepared to assist all eligible candidates who qualify on the basis of need and submit applications prior to the deadline of 15 Mar 72.

Requests for applications or information should be addressed to Navy Relief Society, Suite 1228, 801 North Randolph Street, Arlington, Va. 22203.

### BUPERSINST 5350.5 OF 9 SEP 71

*Subj: Implementation Instructions for  
Navy Participation in the Defense  
Race Relations Institute (DRRI)*

On 18 Aug 69, DOD issued a Statement on Human Goals. To enhance and effect the goals set forth in that Statement and to eliminate racial tension, unrest, and violence, DOD Directive 1322.11 of 24 Jun 71, established the DRRI located at Patrick Air Force Base, Fla. This instruction defines and implements Navy participation in the DRRI. An Educational Program Prospectus is included as an enclosure.

The course is six weeks in length and the Navy's portion of a maximum class population of 200 will be 60-70 students. All students will be in a TAD status with TAD and travel borne by sponsoring commands. Attendees must be volunteers and have at least one year remaining on board prior to RAD/PRD. A rate/rank and racial mix should be achieved and all selections should be made within the rank parameters of E-3 to E-7, O-2 to O-6.

### MANUAL OF THE MEDICAL DEPARTMENT

*Change 68, 18 Aug 1971*

- a. Revises sample organization chart for a dental clinic.
- b. Revises Chapter 6, Section XVI, Dental Officer Training, to reflect new requirements.
- c. Reflects changes concerning care procured from

civilian sources for patients.

d. Reflects changes for annual physical examination of certain marines.

e. Provides for use of proparacaine hydrochloride ophthalmic solution (vice pontocaine or tetracaine) as the anesthetic to be used in testing intraocular tension.

f. Provides for the substitution of SF 93, Report of Medical History, for old SF 89.

### BUMEDINST 5726.1 OF 20 AUG 71

*Subj: Domestic Action Program*

Purpose is to insure continued support of the Domestic Action Program as promulgated in OPNAVINST 5726.5A with Ch-1.

It is the objective of the Domestic Action Program to utilize DOD resources to the fullest extent in cooperation with, and in support of, other governmental and private organizations in a national effort to overcome significant domestic problems and contribute to the constructive development of society.

It is Navy policy to actively support subject program to the maximum extent feasible, consistent with local resources, provided the program does not interfere with the mission of the activity.

### BUMEDINST 6200.3C OF 12 APR 71

*Subj: Environmental and Preventive  
Medicine Units*

Promulgates the objectives, services, and areas of responsibility of the Environmental and Preventive Medicine Units.

The objectives of the units are to provide expert and specialized consultation, advice, and recommendations in matters of preventive medicine and environmental health to commands afloat and ashore; to provide epidemiological, laboratory, and technical services to assist in the detection and elimination of direct or potential health hazards to personnel in the naval service and their families; and to provide training and indoctrination of personnel in the methods and techniques of preventive medicine. The primary effort shall be directed toward the more complex health problems that may be beyond the technical capacity of individual commands.

BUMEDINST 6200.9D OF 17 AUG 71

*Subj: Navy Disease Vector Ecology  
and Control Centers*

Sets forth the mission, functions, and procedure for requesting and utilizing services of the Navy disease vector ecology and control centers.

The centers provide support to the operating forces and shore installations in the control and prevention of disease vectors and pests, including insects, rodents, and related organisms that are capable of transmitting diseases to man; present problems of sanitary or hygienic significance, or which otherwise affect the health and efficiency of personnel.

BUMEDINST 6270.7 OF 30 AUG 71

*Subj: Otto Fuel II, health precautions*

Provides health precautions and guidance on protective devices for personnel exposed to Otto Fuel II which is a liquid propellant currently being used in MK 46 and MK 48 torpedoes. This fuel can be harmful or fatal if swallowed. The first symptom of inhalation of its vapor is often nasal irritation or congestion. Headache is the most characteristic symptom of Otto Fuel II absorption through the skin or the respiratory tract.

BUMEDINST 6320.41A OF 15 SEP 71

*Subj: Aural Rehabilitation*

Redefines the subject program, assigns its parameters, and designates the principal treatment facilities.

Naval Hospitals at Philadelphia and Oakland, are hereby designated as audiology and speech centers and the principal treatment facilities for aural rehabilitation within the Medical Department of the Navy. They shall provide a full range of professional service including: diagnosis, prescription, issue, repair, and maintenance of hearing aids; a complete program of aural rehabilitation; and the preparation of Medical Boards when indicated.

Other naval hospitals which have the requisite staff and equipment may prescribe and issue hearing aids in those uncomplicated cases which do not require aural rehabilitation and which are within the capabilities of the command. "Requisite staff" and "capabilities" for the purpose of this instruction are specifically defined.

BUMED NOTICE 6710 OF 8 SEP 71

*Subj: Removal of Phenobarbital Tablets  
from Fallout Shelter Medical Kits*

Announces a DOD decision to remove phenobarbital tablets from all fallout shelter medical kits located on DOD military installations. Provides instructions to accomplish removal and disposition of these items as part of the continuing effort to eliminate all sources of illicit drugs under DOD custody or control. ☛

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#### AMSUS MEETING

The 78th Annual Convention of the Association of Military Surgeons of the U.S. will be held at the Washington Hilton Hotel in Washington, D.C., on December 5-8, 1971. The timely theme, "Federal and Civilian Health Care Relationships," reflects the emphasis of a well organized program designed to highlight various mechanisms for increasing health manpower required by both sectors. There will be an interesting panel on "Education for Health," chaired by CAPT J. William Cox, MC, USN, Head, Training and Clinical Services, BUMED. Hope to see you there! ☛

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## United States Navy Medicine

**CORRESPONDENCE AND CONTRIBUTIONS** from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, U.S. Navy Medicine, Code 18, Bureau of Medicine and Surgery, Washington, D.C. 20390

**NOTICES** should be received not later than the third day of the month preceding the month of publication.

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**SUGGESTIONS** are invited concerning U.S. Navy Medicine, its content and form.

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By candlelight, a Navy corpsman slips a needle into the vein of a Marine wounded during a North Vietnamese Army rocket, artillery and mortar attack near Cam Lo Village, RVN.

**U.S. NAVY MEDICINE**